AUTODESK. UNIVERSITY

CES322987

Ready, Set, Go – with AutoCAD Action Recorder

Justin Johnson
GPD Group – Akron, OH
jujohnson0625@gmail.com

Learning Objectives

- Learn how to create, save, and playback custom macros to increase productivity
- Learn how to edit existing macros to increase tool capabilities
- Learn how to apply custom macros to maintain and clean drawings easily
- Learn how to share custom macros and custom commands with other users

Description

Do you struggle getting syntax correct to write your own code? Don't know where to start or have the time to learn how to code? The Action Recorder tool in AutoCAD software just might become your new best friend. This feature lets the user record, save, and play back custom macros by simply recording a series of actions as they are completed. In this class, we will cover how to use the Action Recorder to automate the creation and editing of geometry, as well as streamline a series of actions to one custom command. Creating and customizing commands will help to reduce repetitive steps and tasks to save time and increase productivity. We will also discuss sharing these custom commands and processes with other users to save time as well.

Speaker(s)

Justin Johnson is a Design Team Manager for GPD Group, a multi-discipline nationwide architectural and engineering firm. Justin has 12 years of engineering industry experience and adds over 17 years of AutoCAD experience to his team. Justin started as a full-time CAD Designer while earning a Bachelor of Science in Construction Engineering from the University of Akron. He is an AutoCAD Certified Professional and a current member of the Autodesk User Group International. During his tenure, Justin has held the positions of CAD Designer, Drafting Team Leader and now Design Team Manager within the telecommunications division at GPD. In his current role, Justin is responsible for drafting quality control, standards, process innovation, design tool innovation and IT integration tasks of his practice. In addition, Justin serves on the GPD Standards Committee that acts as technical liaisons for the company.

Introduction

What is the Action Recorder?

Autodesk introduced the ability to build custom commands and tools with AutoCAD 2009 and the Action Recorder. The Action Recorder is an easy to use programming tool that can reduce repetitive steps and tasks into simple tools without using LISP. Simply turn the recorder on while performing a task and AutoCAD records your commands and steps and combines them to one tool.

Pros and Cons of using the Action Recorder

LISP, VBA and menu customization are tedious and time consuming to learn. These tools are powerful and still combine repetitive tasks into a single task, but not everyone has time to learn a new language. The Action Recorder does not require learning anything new; we all can use AutoCAD so we should be able to use the Action Recorder. Some of these benefits include:

Pros:

1. The ability to customize without programming.
2. The Action Recorder can record routine tasks from just about anywhere within AutoCAD such as the ribbon, command line, layer properties and more.
3. You can edit and/or create steps to ask for user input or prompt text to display.
4. Recordings can be copied, renamed, even edited and shared with other AutoCAD users.
5. Increases both personal and team productivity.

Cons:

1. Cannot record any action outside of AutoCAD program.
2. The tool is limited to simple repetitive steps in AutoCAD unlike using VBA or LISP as some power users do.
3. Cannot record input from dialogue boxes.
4. The Action Tree, while recording, is very restricted in its functionality.

Getting Started with the Action Recorder

What is an Action Macro

Actions are the user interactions that can be recorded and saved using the Action Recorder. Actions that can be recorded are entered at the command line or through a command initiated dialogue box. While commands that display dialog boxes can be recorded, it is best to strictly use the command line equivalent instead.

Many of the commands that display a dialog box have an alternate command or set of system variables that can be recorded. Using the dialogue boxes initiated from the command line will not pause or "break" the command but instead. Increases the chances of issues and inconsistencies during playback.

To get a command to start wihout using a dialogue box at the start use a "–" (hyphen) to push it to the command line. For example, the PURGE command displays the purge dialog box, while using a hyphen instead, -PURGE, displays the prompts and options at the Command prompt.

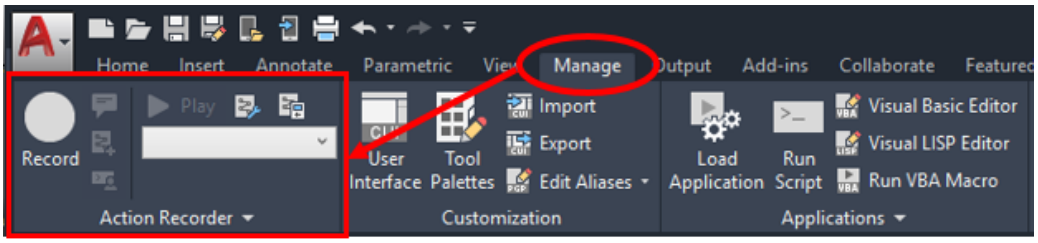
The Command prompt should always be used as the main method of starting a command and providing input when recording with the Action Recorder. On top of the Command prompt we can also use the following user interface elements:

a) Application menu, Quick Access toolbar, toolbars, ribbon panels, and status bars
b) Properties and Quick Properties palettes
c) Tool Palettes window

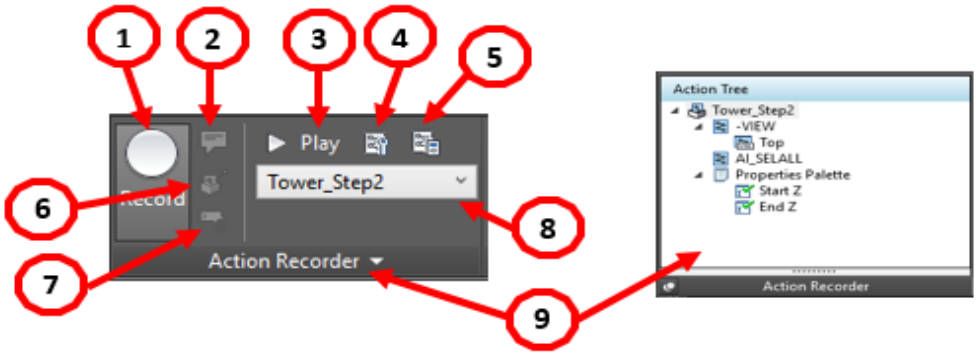
Commands that open, create, save, or close a drawing cannot be recorded along with a small number of other standard commands. You also cannot record anything done outside of the AutoCAD program itself. There is more information on which commands cannot be recorded and other tips about recording commands under the topic "About Action Macros" in the AutoCAD Help system.

The Action Recorder Panel

The most important step is to know where to find the Action Recorder tool and how to utilize the tools surrounding the recorder itself.



The Manage tab is home to the Action Recorder panel as shown in the snip above. You can see here the record button as well as the drop down menu that contains available Macros for playback are active. There are many other options on the panel for use in the action recorder. The following shows the location and describes each control on the Action Recorder:



Record/Stop (1) – Starts and stops the recording of an action macro; stops the playback of an action macro.

Insert Message (2) – Inserts a user message into the current action macro.

Play (3) – Starts the playback of the action macro selected in the Action Macro list.

Preference (4) – Displays the Action Recorder Preferences dialog box, where you can control the display of the Action Recorder panel during recording and playback.

Manage Action Macros (5) – Displays the Action Macro Manager, where you can copy, rename, modify, and delete action macros.

Insert Base Point (6) – Inserts a pause for a base point; the base point is used by the proceeding coordinate entry/value in the action macro.

Pause for User Input (7) – Inserts a pause for user input during playback on the selected value node.

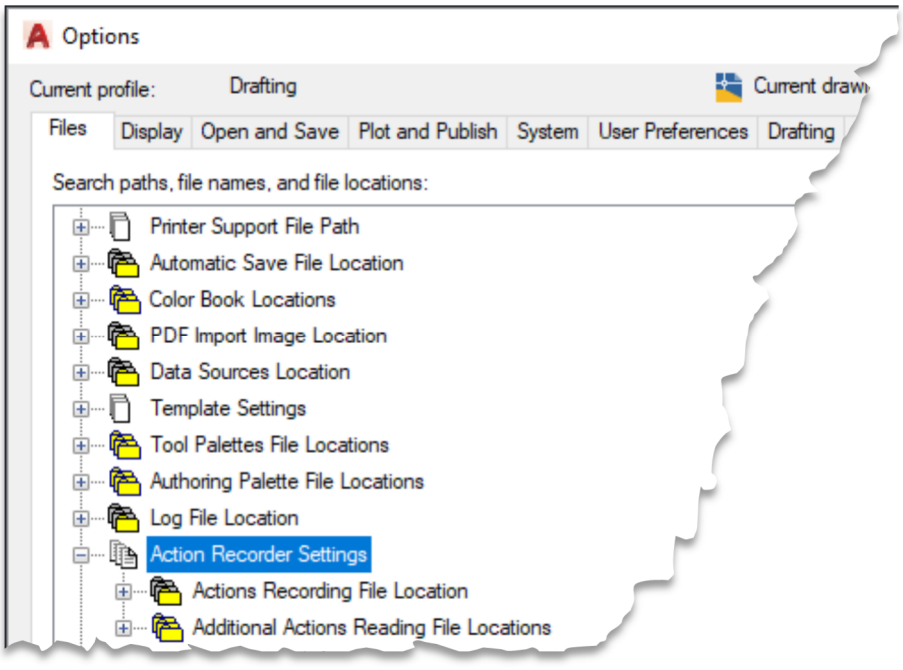
Action Macro List (8) – Displays a list of all available action macros that can be played back or modified. Selecting an action macro sets it as the current action macro to be played or modified in the Action Tree.

Action Tree (9) – Displays the individual actions and values of the current action macro.

Action Recorder File Locations

The Action Macro List described above only contains the macros that are available for use. The options shown in the list are loaded from either a read/write folder location or a read only folder location. The location for both of those folders can be edited within the AutoCAD options dialogue box or by the system variable commands. In both cases, AutoCAD is looking for files with an .actm file extension.

1. ACTPATH sets the read only path for action macro playback.
    a. The folder level needs to be set as read-only, setting this path does not change the folder to read-only.
    b. More than one path can be set for the read-only option within the AutoCAD options dialogue box.
    c. Same as “Additional Actions Reading File Locations” in AutoCAD options
2. ACTRECPATH sets the read/write path for action macro playback.
    a. Only one folder location can be set for read/write folder location.
    b. Same as “Actions Recording File Location” in AutoCAD options



Recording, Playing, and Sharing Action Macros

Recording an Action Macro

Recording step in AutoCAD is as simple as setting your TV to record, just hit the button when you are ready to start. Hitting the Record button or typing the ACTRECORD command will start the process, when done recording click the Stop button or type the ACTSTOP command.

Once the recording of an action macro is complete, you can save it to a file and modify it before playing it back. The Action Macro dialog box is displayed after recording has stopped and allows you to name and save the recorded action macro. Once completed the macro file is saved to the location set in the options dialogue box as discussed previously.

Playing an Action Macro

Using the Action Macro list choose from the available macros and simply just click play. The macro will then run through the recorded steps or prompt for input as it was set up. Another way to play a recorded macro is even simpler, just type in the macro name to the command line. A third way to play an a macro is to right click in the drawing area, click action recorder, Play, then select the macro to play back

Where the "Action" happens – Action Tree

We can change whether or not the action tree is displayed when a macro is played back. This option is found on the Preferences (#4 above) dialogue box and is able to be turned on or off using the check box. In the preferences we can also change the options for whether or not the panel is expanded while recording macros and also whether or not we are prompted for the macro name.

The action tree is one of the most useful parts of the Action Recorder panel. The panel shows the commands and options that have been recorded. While recording an action we can only use the action tree to modify the macro by inserting a pause for input or inserting a user message. After an action macro is recorded, you can change the recorded actions and values from the Action Tree of the Action Recorder. We can do that by:

a) Removing an action.
b) Editing a recorded value.
c) Inserting a user message.
d) Requesting a pause for input.
e) Inserting a base point. (Setting all points relative to the first point selected during playback, or use a combination or absolute and relative coordinates).

Sharing Recorded Actions

We briefly touched on how to share recorded macros with other team members earlier in the session when we talked about the Action Recorder file location paths. To share the tools we have created with others we need to set the ACTPATH to a shared folder location. This folder will be a read-only folder and will not allow other users to write to the folder for new recordings.

The CAD manager then would be in charge of adding new recording to the “read-only” file location to share with other users. Each user can have their own ACTRECPATH set as long as it is not a location that isn’t meant to share with other users.

Troubleshooting

Overwriting Existing Commands

AutoCAD will not let you create a macro that has the same name as an existing command. For example creating a command and naming it “Copy” will not work. Also need to watch creating macros with the same command aliases as what is already defined in the PGP file. Creating a command with the name “L” or “C” will replace “L” for the Line command and “C” for the Circle command. We do not want to do that, Keep in mind that macros are essentially AutoCAD commands.

Error Messages

After an action macro is recorded with the Action Recorder, you can play back the series of recorded commands and input values. As an action macro is played back, the series of commands are performed continuously until it is interrupted for user input or n error occurs. Some of the reasons for the playback to stop or fail are as follows:

1. **Invalid command:** The command that is defined in the action macro is unknown. The action macro might have been recorded in a different product or contains custom commands or macros that are not loaded.

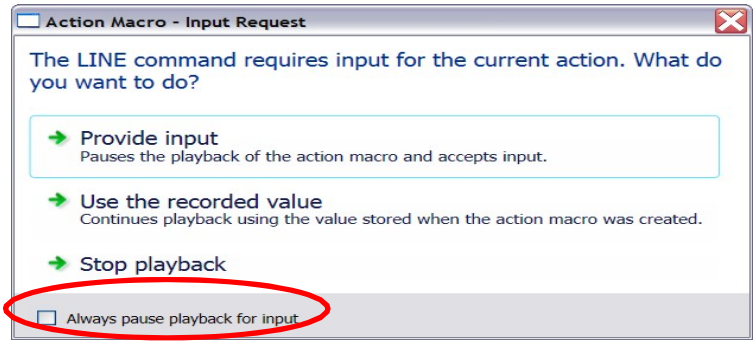
2. **Empty selection:** The current action expected a selection set of objects, but no objects were selected.

3. **Macro cancelled:** The Cancel button in one of the dialogs boxes was clicked.

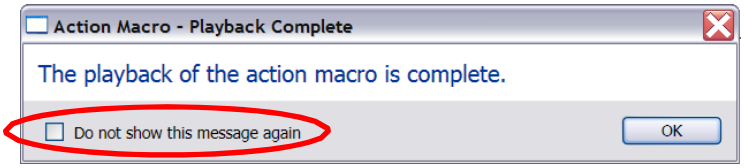
Hidden Messages

During playback different dialogue boxes will appear for various reasons. We have the capability to turn these boxes off on future Macros that prompt the boxes to display. The following describes the dialogue boxes and also how to turn them off and back on again if desired.

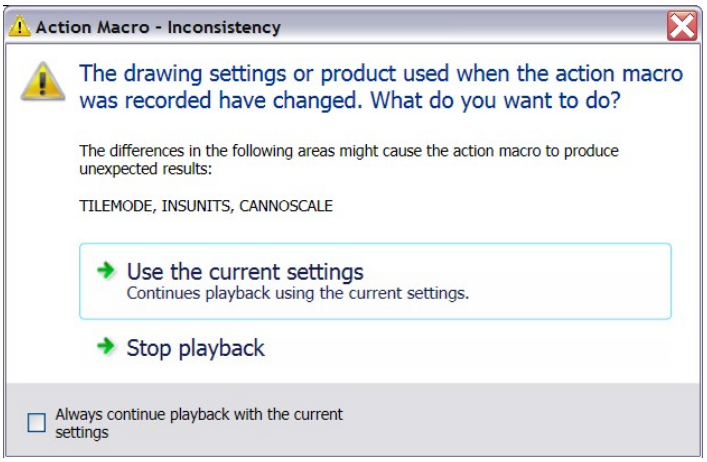
1. Input Request, this dialog box opens to remind you to enter data or pick a point. If you choose “Always pause playback for input” the dialog box will never appear again for any future macro playback.



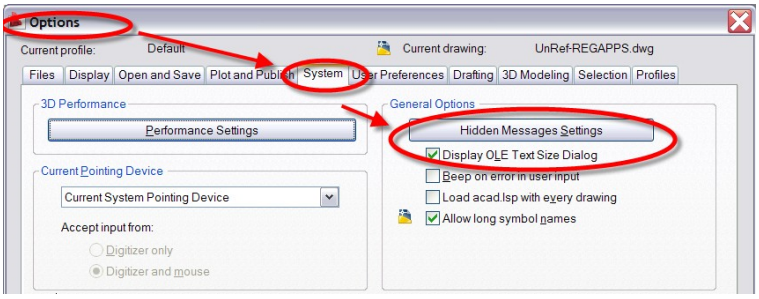
2. The “Playback Complete” dialog box appears at the end of the Macro playback. If you choose “Do not show this message again” the dialog box will never appear again for any future macro playback.



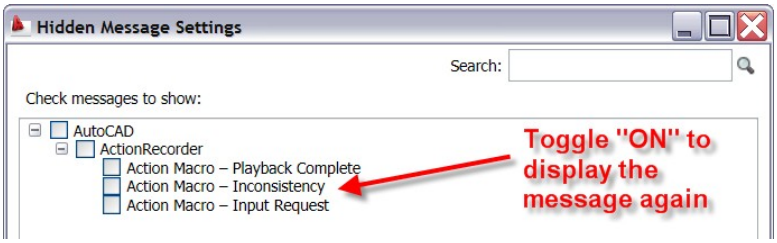
3. The “Inconsistency” dialog appears. This dialog box appears when you start a macro in a file with units, scale or tilemode (paper space or model space) that is different than the file how the macro was recorded. If you choose “Always continue playback with the current settings” the dialog box will never appear again for any future macro playback.



To display these dialogue boxes or “Hidden Messages” again, we need to go the Options dialog box, locate the System tab and choose “Hidden Messages Settings”.



From here we can restore the closed dialog boxes or user message that were closed during an operation by checking the messages to display.



Summary

In this session I have provided a basic outline as to what the Action Recorder is and what the tool capabilities and limits are. We have gone through several examples during the discussion, which are listed at the end of the handout.

In Review the Action recorder is good for:

1. Creating geometry
2. Editing or modifying geometry
3. Drawing setup, maintenance and utilities

In addition to the above function the Action Recorder can also serve as an evaluation tool for current employees and/or new hires. You could give the employee a task of sorts and then turn on the recorder to see what steps the person uses to complete the task. The end game of creating Action Macros is to reduce or eliminate repetitive steps and/or tasks. Its main function is to combine these steps into one smart tool without having to learn a whole new language.

Action Recorder Samples

Ex. 1 - Creating a new layer

1. Click Manage tab, Action Recorder panel, “Record” (ACTREC).
2. Type **–layer** and the command prompt and hit enter.
3. At the “Enter an option” prompt type **m** for **Make** and hit enter again.
4. For the next prompt, “Enter name for new layer”, type the desired layer name, **AU2019**.
5. At the “Enter an option” prompt type **c** for **Color** and hit enter again.
6. At the “New Color” prompt choose the new layer color, 6
7. Hit enter again at the next prompt “Enter name list of layer(s) for color 6 (Magenta)”
    a. If the Action Macro – Value Not Recorded dialogue box pops up click the *Use the* “Value that is Current at Playback” link
8. Press enter again to end the new layer command
9. Click Manage tab, Action Recorder panel, “Stop” (ACTSTOP).
10. Within the Action Macro dialogue box:
    a. Give the command a name, **NewLayer**
    b. Give the description, **Creates New layer on Color 6**

Ex. 2 - Creating Geometry

1. Click Manage tab, Action Recorder panel, “Record” (ACTREC).
2. Type **–rectangle** and the command prompt and hit enter.
    a. You can also select the command from the Ribbon Tool
3. Using the command line enter the following properties:
    a. **Fillet = 2**
    b. **Width = 0.125**
4. Select the starting point on the screen or enter the coordinates at the command line
    a. This case use **0,0**
5. Select Dimensions at the command line or type D and hit enter
    a. **Length = 60**
    b. **Width = 20**
6. Select the opposite corner orientation
7. Exist the command using the Escape key
    a. Does not exit the Action Recorder

8. Click Manage tab, Action Recorder panel, “Stop” (ACTSTOP).
9. Within the Action Macro dialogue box:
    a. Give the command a name, **Rectangle**
    b. Give the description, **Creates 60x20 rectangle**
    c. Select the check box for “Restore pre-playback view” for **Once playback finishes**
10. Remove the rectangle we just created and then playback the new macro to ensure it works properly.

Ex. 3 - Creating Geometry – with user input

1. Right click on the Rectangle macro from the previous exercise and choose “Copy”
2. Type **RectSel** as the new Action macro Name.
3. On the Action Tree right click the cursor icon 
4. On the pop-up menu select “Request User Input”
5. Play the new Action and take notice of the command prompt to select the corner point instead of having the same starting location.

Now lets add a User Message to the same command

6. Again right click on the cursor icon in the Action Tree
7. In the pop-up menu select “Insert User Message” this time
8. Add the below text in the dialogue box”
    a. **Select starting point of the rectangle**
9. Choose play and this time the user message appears as typed in to give clarity as why the command is paused.

Ex. 4 - Cleaning Drawing Files, Purge and Audit

1. Click Manage tab, Action Recorder panel, “Record” (ACTREC).
2. In the command prompt type **–Purge** and hit enter
3. At the “Enter type of unused objects to purge” prompt type **A** for **All** and hit enter again
4. At the “Enter name(s) to purge” prompt hit enter (<*>) to continue using all
5. At the “Verify each name to purge?” prompt type **N** for **No**
6. In the command prompt type **–Audit** and hit enter
7. At the “Fix any errors detected” prompt type **Y** for **Yes** and hit enter again

11. At Click Manage tab, Action Recorder panel, “Stop” (ACTSTOP).
12. Within the Action Macro dialogue box:
    a. Give the command a name, **CleanDrwing**
    b. Give the description, **Runs Purge and Audit on Current Drawing**

More Examples to come….