

Important AUTO commands

See AUTO manual for more.

Command	Usage	Description
@r	@r x	Run AUTO. Restart data, if needed, are expected in q.x, and AUTO-constants in r.x. This is the simplest way to run AUTO.
	@r x y	Run AUTO with equations-file x.f and restart data-file q.y. AUTO-constants must be in r.x.
	@r x y z	Run AUTO with equations-file x.f, restart data-file q.y and constants-file r.z
@R	@R x	Run AUTO. Restart data, if needed, are expected in q.x, and AUTO-constants in r.x (equivalent to @r x)
	@R x i	Run AUTO with equations-file x.f, constants-file r.x.i and, if needed, restart data-file q.x.
	@R x i y	Run AUTO with equations-file x.f, constants-file r.x.i and restart data-file q.y
@h	@h x	Run AUTO/HOMCONT. Restart data, if needed, are expected in q.x, AUTO-constants in r.x and HOMCONT-constants in s.x.
	@h x y	Run AUTO/HOMCONT with equations-file x.f and restart data-file q.y. AUTO-constants must be in r.x and HOMCONT-constants in s.x.
	@h x y z	Run AUTO/HOMCONT with equations-file x.f, restart data-file q.y and constants-files r.z and s.z.
@H	@H x	Run AUTO/HOMCONT. Restart data, if needed, are expected in q.x, AUTO-constants in r.x and HOMCONT-constants in s.x (equivalent to @h x)
	@H x i	Run AUTO/HOMCONT with equations-file x.f and constants-files r.x.i and s.x.i and, if needed, restart data-file q.x.
	@H x i y	Run AUTO/HOMCONT with equations-file x.f, constants-files r.x.i and s.x.i, and restart data-file q.y.
@sv	@sv x	Save the output-files fort.7, fort.8, fort.9, as p.x, q.x, d.x, respectively. Existing files by these names will be deleted.
@ap	@ap x	Append the output-files fort.7, fort.8, fort.9, to existing data-files p.x, q.x, d.x, resp.
	@ap x y	append p.x, q.x, d.x, to p.y, q.y, d.y, resp.
@cp	@cp x y	Copy the data-files p.x, q.x, d.x, r.x to p.y, q.y, d.y, r.y, respectively.
@p	@p x	Plot: run the graphics program PLAUT for the graphical inspection of the data-files p.x and q.x
	@p	Run the graphics program PLAUT for the graphical inspection of the output-files fort.7 and fort.8.
@ps	@ps fig	Convert a saved PLAUT figure fig from compact PLOT10 format to Postscript format. The converted file is called fig.ps. The original file is left unchanged.
@dm	@dm x	Demo: Copy all demo files from auto/97/demos/x to the current user directory. Here x denotes a demo name; e.g., abc. Note that the @dm command also copies a Makefile to the current user directory. To avoid the overwriting of existing files, always run demos in a clean work directory.
@lb	@lb	Relabel Run an interactive utility program for listing, deleting, and relabeling solutions in the AUTO output-files fort.7 and fort.8. The original files are backed up as fort.7~ and fort.8~.
	@lb x	List, delete, and relabel solutions in the AUTO data-files p.x and q.x. The original files are backed up as p.x~ and q.x~.
	@lb x y	List, delete, and relabel solutions in the AUTO data-files p.x and q.x. The modified files are written as p.y and q.y.

Plot commands

See AUTO manual for more. Call by `@p bif`. The plot utility looks up the files `p.bif` for bifurcation diagrams and `q.bif` for phase portraits and time profiles.

Command	Description
bd0	Initial overview of the bifurcation diagram as stored in <code>p.bif</code> . Select option <code>d0</code> , <code>d1</code> , <code>d2</code> , <code>d3</code> , or <code>d4</code> before.
bd	Same as <code>bd0</code> command, except that you will be asked to enter the minimum and the maximum of the horizontal and vertical axes.
ax	Select pair of columns from <code>p.bif</code> as horizontal and vertical axis in the bifurcation diagram. (The default is columns 1 and 2). Look at the screen output of the AUTO run, or inspect the column headings in <code>p.bif</code> .
2d	2D plots of time profiles or phase portraits. Labels come from <code>q.bif</code> . Exit this mode with <code>ex</code> .
3d	3D plots of time profiles or phase portraits. Labels come from <code>q.bif</code> . Exit this mode with <code>ex</code> . Type <code>help</code> for online help.
sav	Save the displayed plot in a file. You will be asked to enter a file name. Convert to Postscript with <code>@ps</code> .
quit	Close the plot window.

Option	Description
d0	solid curves, showing solution labels and symbols
d1	solid curves, except use dashed curves for unstable solutions and for solutions of unknown stability. Show solution labels and symbols
d2	as <code>d1</code> , but with grid lines
d3	as <code>d1</code> , except for periodic solutions use solid circles if stable, and open circles if unstable or if the stability is unknown
d4	solid curves, without labels and symbols

Typical usage

Run AUTO:

```
input⇒ ldsg/bazykin> @R ab delta-eq-0
Starting ab ...

      BR    PT  TY LAB    PAR(1)      L2-NORM      U(1)      U(2)
      1     1   EP   1  0.000000E+00  1.407160E+00  1.000000E+00  9.900000E-01
      1     6   HB   2  1.020625E-02  1.421598E+00  1.010312E+00  1.000105E+00
      1    579  HB   3  9.797938E-01  5.544456E+01  4.948969E+01  2.499740E+01
      1   1159  BP   4  9.900000E-01  9.999999E+01  9.999999E+01  7.536678E-06
      1   1500  EP   5  9.917783E-01  1.244411E+02  1.216287E+02 -2.630678E+01

Total Time      0.465E+00
ab ... done
```

Save output and plot:

```
input⇒ ldsg/bazykin> @sv delta-eq-0
Saving fort.7 as p.delta-eq-0 ... done
Saving fort.8 as q.delta-eq-0 ... done
Saving fort.9 as d.delta-eq-0 ... done

input⇒ ldsg/bazykin> @p delta-eq-0
Plotting p.delta-eq-0 and q.delta-eq-0 ...
```

opens a plot window. In the plot window type:

```
input⇒ ax
input⇒ 1 3
input⇒ d1bd0
```

to see a bifurcation diagram showing `par(1)` versus `u(1)`.