

**irf cgraph** — Combined graphs of IRFs, dynamic-multiplier functions, and FEVDs

[Description](#)  
[Options](#)

[Quick start](#)  
[Remarks and examples](#)

[Menu](#)  
[Stored results](#)

[Syntax](#)  
[Also see](#)

## Description

`irf cgraph` makes a graph or a combined graph of IRF results. A graph is drawn for specified combinations of named IRF results, impulse variables, response variables, and statistics. `irf cgraph` combines these graphs into one image, unless separate graphs are requested.

`irf cgraph` operates on the active IRF file; see [\[TS\] irf set](#).

## Quick start

Combine graphs of an orthogonalized IRF `myirf` and cumulative IRF `mycirf` for dependent variables `y1` and `y2`

```
irf cgraph (myirf y1 y2 oirf) (mycirf y1 y2 cirf)
```

As above, but suppress confidence bands and add a title

```
irf cgraph (myirf y1 y2 oirf) (mycirf y1 y2 cirf), noci ///
    title("My Title")
```

Note: `irf` commands can be used after `var`, `svar`, `vec`, `arima`, or `arfima`; see [\[TS\] var](#), [\[TS\] var svar](#), [\[TS\] vec](#), [\[TS\] arima](#), or [\[TS\] arfima](#).

## Menu

Statistics > Multivariate time series > IRF and FEVD analysis > Combined graphs

## Syntax

```
irf cgraph (spec1) [ (spec2) ... [ (specN) ] ] [ , options ]
```

where (*spec*<sub>*k*</sub>) is

```
(irfname impulsevar responsevar stat [ , spec_options ])
```

*irfname* is the name of a set of IRF results in the active IRF file. *impulsevar* should be specified as an endogenous variable for all statistics except *dm* and *cdm*; for those, specify as an exogenous variable. *responsevar* is an endogenous variable name. *stat* is one or more statistics from the list below:

<i>stat</i>	Description
Main	
<i>irf</i>	impulse–response function
<i>oirf</i>	orthogonalized impulse–response function
<i>dm</i>	dynamic-multiplier function
<i>cirf</i>	cumulative impulse–response function
<i>coirf</i>	cumulative orthogonalized impulse–response function
<i>cdm</i>	cumulative dynamic-multiplier function
<i>fevd</i>	Cholesky forecast-error variance decomposition
<i>sirf</i>	structural impulse–response function
<i>sfevd</i>	structural forecast-error variance decomposition

Notes: 1. No statistic may appear more than once.

2. If confidence intervals are included (the default), only two statistics may be included.

3. If confidence intervals are suppressed (option *nocl*), up to four statistics may be included.

<i>options</i>	Description
Main	
<i>set</i> ( <i>filename</i> )	make <i>filename</i> active
Options	
<i>combine_options</i>	affect appearance of combined graph
Y axis, X axis, Titles, Legend, Overall	
<i>twoway_options</i>	any options other than <i>by</i> () documented in [G-3] <i>twoway_options</i>
* <i>spec_options</i>	level, steps, and rendition of plots and their CIs
<i>individual</i>	graph each combination individually

\**spec\_options* appear on multiple tabs in the dialog box.

*individual* does not appear in the dialog box.

<i>spec_options</i>	Description
Main	
<code>noci</code>	suppress confidence bands
Options	
<code>level(#)</code>	set confidence level; default is <code>level(95)</code>
<code>lstep(#)</code>	use <code>#</code> for first step
<code>ustep(#)</code>	use <code>#</code> for maximum step
Plots	
<code>plot#opts(<i>line_options</i>)</code>	affect rendition of the line plotting the <code># stat</code>
CI plots	
<code>ci#opts(<i>area_options</i>)</code>	affect rendition of the confidence interval for the <code># stat</code>

*spec\_options* may be specified within a graph specification, globally, or in both. When specified in a graph specification, the *spec\_options* affect only the specification in which they are used. When supplied globally, the *spec\_options* affect all graph specifications. When supplied in both places, options in the graph specification take precedence.

## Options

### Main

`noci` suppresses graphing the confidence interval for each statistic. `noci` is assumed when the model was fit by `vec` because no confidence intervals were estimated.

`set(filename)` specifies the file to be made active; see [TS] [irf set](#). If `set()` is not specified, the active file is used.

### Options

`level(#)` specifies the default confidence level, as a percentage, for confidence intervals, when they are reported. The default is `level(95)` or as set by `set level`; see [U] [20.7 Specifying the width of confidence intervals](#). The value set of an overall `level()` can be overridden by the `level()` inside a (*spec<sub>k</sub>*).

`lstep(#)` specifies the first step, or period, to be included in the graph. `lstep(0)` is the default.

`ustep(#)`, `# ≥ 1`, specifies the maximum step, or period, to be included in the graph.

*combine\_options* affect the appearance of the combined graph; see [G-2] [graph combine](#).

### Plots

`plot1opts(cline_options)`, ..., `plot4opts(cline_options)` affect the rendition of the plotted statistics. `plot1opts()` affects the rendition of the first statistic; `plot2opts()`, the second; and so on. *cline\_options* are as described in [G-3] [cline\\_options](#).

### CI plots

`ci1opts1(area_options)` and `ci2opts2(area_options)` affect the rendition of the confidence intervals for the first (`ci1opts()`) and second (`ci2opts()`) statistics. See [TS] [irf graph](#) for a description of this option and [G-3] [area\\_options](#) for the suboptions that change the look of the CI.

Y axis, X axis, Titles, Legend, Overall

*twoway\_options* are any of the options documented in [G-3] *twoway\_options*, excluding `by()`. These include options for titling the graph (see [G-3] *title\_options*) and for saving the graph to disk (see [G-3] *saving\_option*).

The following option is available with `irf cgraph` but is not shown in the dialog box:

`individual` specifies that each graph be displayed individually. By default, `irf cgraph` combines the subgraphs into one image.

## Remarks and examples

[stata.com](http://www.stata.com)

If you have not read [TS] `irf`, please do so.

The relationship between `irf cgraph` and `irf graph` is syntactically and conceptually the same as that between `irf ctable` and `irf table`; see [TS] `irf ctable` for a description of the syntax.

`irf cgraph` is much the same as using `irf graph` to make individual graphs and then using `graph combine` to put them together. If you cannot use `irf cgraph` to do what you want, consider the other approach.

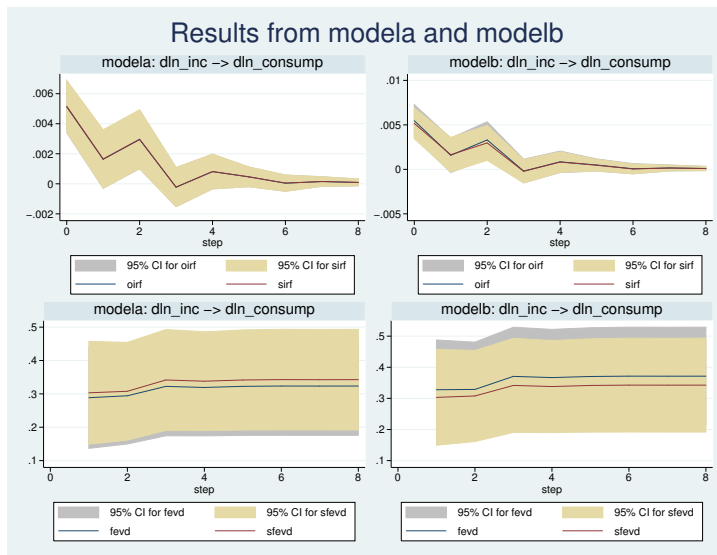
### ► Example 1

You have previously issued the commands:

```
. use http://www.stata-press.com/data/r14/lutkepohl2
. mat a = (., 0, 0\0,.,0\.,.,.)
. mat b = I(3)
. svar dln_inv dln_inc dln_consump, aeq(a) beq(b)
. irf create modela, set(results3) step(8)
. svar dln_inc dln_inv dln_consump, aeq(a) beq(b)
. irf create modelb, step(8)
```

You now type

```
. irf cgraph (modela dln_inc dln_consump oirf sirf)
> (modelb dln_inc dln_consump oirf sirf)
> (modela dln_inc dln_consump fevd sfevd, lstep(1))
> (modelb dln_inc dln_consump fevd sfevd, lstep(1)),
> title("Results from modela and modelb")
```



◀

## Stored results

`irf cgraph` stores the following in `r()`:

Scalars

`r(k)` number of specific graph commands

Macros

`r(individual)` individual, if specified  
`r(save)` *filename*, replace from `saving()` option for combined graph  
`r(name)` *name*, replace from `name()` option for combined graph  
`r(title)` title of the combined graph  
`r(save#)` *filename*, replace from `saving()` option for individual graphs  
`r(name#)` *name*, replace from `name()` option for individual graphs  
`r(title#)` title for the #th graph  
`r(ci#)` level applied to the #th confidence interval or `nocl`  
`r(response#)` response specified in the #th command  
`r(impulse#)` impulse specified in the #th command  
`r(irfname#)` IRF name specified in the #th command  
`r(stats#)` statistics specified in the #th command

## Also see

[TS] [irf](#) — Create and analyze IRFs, dynamic-multiplier functions, and FEVDs

[TS] [var intro](#) — Introduction to vector autoregressive models

[TS] [vec intro](#) — Introduction to vector error-correction models