

ISO CLNS Commands

This section describes the function and displays the syntax of each ISO CLNS command. For more information about defaults and usage guidelines, see the corresponding chapter of the *Router Products Command Reference* publication.

[no] area-password [*password*]

Use the **area-password** router configuration command to configure the area authentication password. The **no** form of this command disables the password.

password Password you assign.

clear clns cache

Use the **clear clns cache** EXEC command to clear and reinitialize the CLNS routing cache.

clear clns es-neighbors

Use the **clear clns es-neighbors** EXEC command to remove ES neighbor information from the adjacency database.

clear clns is-neighbors

Use the **clear clns is-neighbors** EXEC command to remove IS neighbor information from the adjacency database.

clear clns neighbors

Use the **clear clns neighbors** EXEC command to remove CLNS neighbor information from the adjacency database.

clear clns route

Use the **clear clns route** EXEC command to remove all of the dynamically derived CLNS routing information.

[no] clns access-group *name* [**in** | **out**]

Use the **clns access-group** interface configuration command to filter transit CLNS traffic going either into or out of the router or both on a per-interface basis. Use the **no** form of this command to disable filtering of transit CLNS packets.

<i>name</i>	Name of the filter set or expression to apply.
in	(Optional) Filter should be applied to CLNS packets entering the router.
out	(Optional) Filter should be applied to CLNS packets leaving the router. If you do not specify an in or out keyword, out is assumed.

[no] clns adjacency-filter {**es** | **is**} *name*

Use the **clns adjacency-filter** interface configuration command to filter the establishment of CLNS end system (ES) and intermediate system (IS) adjacencies. Use the **no** form of this command to disable this filtering.

es	End system adjacencies are to be filtered.
is	Intermediate system adjacencies are to be filtered.
<i>name</i>	Name of the filter set or expression to apply.

[no] clns checksum

Use the **clns checksum** interface configuration command to enable checksum generation when ISO CLNS routing software sources a CLNS packet. Use the **no** form of this command to disable checksum generation.

[no] clns cluster-alias

Use the **clns cluster-alias** interface configuration command to allow multiple systems to advertise the same system ID as other systems in end-system hello messages. The **no** form of this command disables cluster aliasing.

clns configuration-time *seconds*

no clns configuration-time

Use the **clns configuration-time** global configuration command to specify the rate at which ES hellos (ESHs) and IS hellos (ISHs) are sent. You can restore the default value by specifying the **no** form of this command.

seconds Rate in seconds at which ESH and ISH packets are sent. The default is 60 seconds.

clns congestion-threshold *number*

no clns congestion-threshold

Use the **clns congestion-threshold** interface configuration command to set the congestion experienced bit if the output queue has more than the specified number of packets in it. Use the **no** form of this command to remove the parameter setting and set it to 0.

number Number of packets that are allowed in the output queue before the system sets the congestion-experienced bit. The value zero (0) prevents this bit from being set. The default is 4.

[no] clns dec-compatible

Use the **clns dec-compatible** interface configuration command to allow ISHs sent and received to ignore the N-selector byte. Use the **no clns-compatible** command to disable this feature.

[no] clns enable

Use the **clns enable** interface configuration command if you do not intend to perform any static or dynamic routing on an interface, but intend to pass ISO CLNS packet traffic to end systems. Use the **no clns enable** command to disable ISO CLNS on a particular interface.

[no] clns erpdu-interval *milliseconds*

Use the **clns erpdu-interval** interface configuration command to determine the minimum interval time, in milliseconds, between error PDUs (ERPDU). A *milliseconds* value of zero or the **no** form of this command turns off the interval and effectively sets no limit between ERPDU.

milliseconds Minimum interval time (in milliseconds) between ERPDU. The default is 10 milliseconds.

[no] clns esct-time *seconds*

Use the **clns esct-time** interface configuration command to supply an ES Configuration Timer (ESCT) option in a transmitted IS hello packet that tells the end system how often it should transmit ES hello packet protocol data units (PDUs). Use the **no** form of this command to restore the default value and disable this feature.

seconds Time, in seconds, between ESH PDUs. Range is from 0 through 65535. The default is 0 seconds.

clns es-neighbor *nsap snpa*

no clns es-neighbor *nsap*

Use the **clns es-neighbor** interface configuration command to list all end systems that will be used when you manually specify the NSAP-to-SNPA mapping. The SNPAs are the MAC addresses. Use the **no** form of this command to delete the ES neighbor.

nsap Specific NSAP to map to the MAC address.

snpa Data link (MAC) address.

cls filter-expr *ename term*
cls filter-expr *ename not term*
cls filter-expr *ename term or term*
cls filter-expr *ename term and term*
cls filter-expr *ename term xor term*
no cls filter-expr *ename*

Use one or more **cls filter-expr** global configuration commands to combine CLNS filter sets and CLNS address templates into complex logical NSAP pattern-matching expressions. The **no** form of this command deletes the expression. There are many forms of this command.

<i>ename</i>	Alphanumeric name to apply to this filter expression.
<i>term</i>	Filter expression term. A term can be any of the following: <i>ename</i> —Another, previously defined, filter expression. <i>sname</i> (or destination <i>sname</i>)—A previously defined filter set name, with the filter set applied to the destination NSAP address. source <i>sname</i> —A previously defined filter set name, with the filter set applied to the source NSAP address.

clns filter-set *sname* [**permit** | **deny**] *template*
no clns filter-set *sname*

Use one or more **clns filter-set** global configuration commands to build a list of CLNS address templates with associated permit and deny conditions for use in CLNS filter expressions. CLNS filter expressions are used in the creation and use of CLNS access lists. The **no** form of this command deletes the entire filter set.

<i>sname</i>	Alphanumeric name to apply to this filter set.
permit deny	(Optional) Addresses matching the pattern specified by <i>template</i> are to be permitted or denied. If neither permit nor deny is specified, permit is assumed.
<i>template</i>	Address template, template alias name, or the keyword default . Address templates and alias names are described under the description of the clns template-alias global configuration command. The default keyword denotes a zero-length prefix and matches any address.

clns holding-time *seconds*
no clns holding-time

Use the **clns holding-time** global configuration command to allow the sender of an ESH or ISH to specify the length of time you consider the information in the hello packets to be valid. To restore the default value (300 seconds or 5 minutes), use the **no** form of this command.

<i>seconds</i>	Length of time in seconds during which the information in the hello packets is considered valid. The default is 300 seconds (5 minutes).
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clns host *name nsap*

Use the **clns host** global configuration command to define a name-to-NSAP mapping that can then be used with commands requiring NSAPs.

<i>name</i>	Desired name for the NSAP. The first character can be either a letter or a number, but if you use a number, the operations you can perform are limited.
<i>nsap</i>	NSAP that the name maps to.

clns is-neighbor *nsap snpa*

no clns is-neighbor *nsap*

Use the **clns is-neighbor** interface configuration command to list all intermediate systems that will be used when you manually specify the NSAP-to-SNPA mapping. Use the **no** form of this command to delete the specified IS neighbor.

<i>nsap</i>	NSAP of a specific intermediate system to enter as a neighbor to a specific MAC address.
<i>snpa</i>	Data link (MAC) address.

clns mtu *size*

no clns mtu

Use the **clns mtu** interface configuration command to set the MTU packet size for the interface. The **no** form of this command restores the default and maximum packet size.

<i>size</i>	Maximum packet size in bytes. The minimum value is 512; the default and maximum packet size depends on the interface type.
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[no] clns net {*net-address* | *name*}

Use the **clns net** global configuration command to assign a static address for a router. If a router is configured to support ISO CLNS but is not configured to dynamically route CLNS packets using ISO-IGRP or

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IS-IS, use this command to assign an address to the router. The **no** form of this command removes any previously configured NET or NSAP address.

<i>net-address</i>	Network Entity Title (NET). See the algorithm in the “Usage Guidelines” section of this command in the <i>Router Products Command Reference</i> publication.
<i>name</i>	CLNS host name to be associated with this interface.

[no] clns net {*nsap-address* | *name*}

Use this form of the **clns net** command as an interface configuration command to assign an NSAP address or name to a router interface. If a router is configured to support ISO CLNS, but is not configured to dynamically route CLNS packets using ISO-IGRP or IS-IS, use this command to assign an address to the router. The **no** form of this command removes any previously configured NSAP address.

<i>nsap-address</i>	Specific Network Service Access Point address.
<i>name</i>	Name to be associated with this interface.

clns packet-lifetime *seconds*

no clns packet-lifetime

Use the **clns packet-lifetime** global configuration command to specify the initial lifetime for locally generated packets. The **no** form of this command removes the parameter’s settings.

<i>seconds</i>	Packet lifetime in seconds. The default is 32 seconds.
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[no] clns rd pdu-interval *milliseconds*

Use the **clns rd pdu-interval** interface configuration command to determine the minimum interval time, in milliseconds, between redirect PDUs (RDPDUs). A *milliseconds* value of zero or the **no** form of this command turns off the interval rate and effectively sets no limit between RDPDUs.

milliseconds Minimum interval time in milliseconds between RDPDUs. The default is 100 milliseconds.

clns route *nsap-prefix* **discard**
no clns route *nsap-prefix*

Use this form of the **clns route** global configuration command with the **discard** keyword to explicitly tell a router to discard packets with NSAP addresses that match the specified *nsap-prefix*. The **no** form of this command removes this route.

nsap-prefix Network service access point prefix. This value is entered into a static routing table and used to match the beginning of a destination NSAP. The longest NSAP-prefix entry that matches is used.

discard Explicitly tell a router to discard packets with NSAPs that match the specified *nsap-prefix*.

clns route *nsap-prefix interface-type* [*snpa-address*]
no clns route *nsap-prefix*

Use this form of the **clns route** global configuration command to create an interface static route. The **no** form of the command removes this route.

nsap-prefix Network service access point prefix. This value is entered into a static routing table and used to match the beginning of a destination NSAP. The longest NSAP-prefix entry that matches is used.

interface-type Interface type and number.

snpa-address (Optional) Optional for serial links; required for multiaccess networks.

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clns route *nsap-prefix* {*next-hop-net* | *name* }
no clns route *nsap-prefix*

Use this form of the **clns route** global configuration command to enter a specific static route. NSAPs that start with *nsap-prefix* are forwarded to *next-hop-net* or the *name* of the next hop. The **no** form of this command removes this route.

<i>nsap-prefix</i>	Network service access point prefix. This value is entered into a static routing table and used to match the beginning of a destination NSAP. The longest NSAP-prefix entry that matches is used.
<i>next-hop-net</i>	Next-hop Network Entity Title. This value is used to establish the next hop of the route for forwarding packets.
<i>name</i>	Name of the next hop node. This value can be used instead of the next-hop NET to establish the next hop of the route for forwarding packets.

clns route default *nsap-prefix interface-type*
no clns route default

Use this form of the **clns route** global configuration command to configure a default zero-length prefix rather than type an NSAP prefix. The **no** form of this command removes this route.

<i>nsap-prefix</i>	Network service access point prefix that is a default zero-length prefix.
<i>interface-type</i>	Interface type and number.

[no] clns route-cache

Use the **clns route-cache** interface configuration command to allow fast switching through the cache. To disable fast switching, use the **no** form of this command.

[no] clns router isis *[tag]*

Use the **clns router isis** interface configuration command to enable IS-IS routing for OSI on a specified interface. Use the **no** form of this command with the appropriate area tag to disable IS-IS on the interface.

tag (Optional) Meaningful name for a routing process. If not specified, a null tag is assumed. It must be unique among all CLNS router processes for a given router. Use the same text for the argument *tag* as specified in the **router isis** global configuration command.

clns router iso-igrp *tag* **[level 2]**

no clns router iso-igrp *tag*

Use the **clns router iso-igrp** interface configuration command to specify ISO-IGRP routing on a specified interface. Use the **no** form of this command with the appropriate tag to disable ISO-IGRP routing on the interface.

tag Meaningful name for routing process. It must be unique among all CLNS router processes for a given router. This tag should be the same as defined for the routing process in the **router iso-igrp** global configuration command.

level 2 (Optional) Allows the interface to advertise Level 2 information.

[no] clns routing

Use the **clns routing** global configuration command to enable routing of CLNS packets. Use the **no** form of this command to disable CLNS routing.

[no] clns security pass-through

Use the **clns security pass-through** global configuration command to allow the router to pass packets that have security options set. To revert to the default, use the **no** form of this command.

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[no] clns send-erpdu

Use the **clns send-erpdu** interface configuration command to allow CLNS to send an error PDU when the routing software detects an error in a data PDU. To disable this function, use the **no** form of this command.

[no] clns send-rdpdu

Use the **clns send-rdpdu** interface configuration command to allow CLNS to send redirect PDUs (RDPDUs) when a better route for a given host is known. To disable this function, use the **no** form of this command.

[no] clns split-horizon

Use the **clns split-horizon** interface configuration command to implement split horizon for ISO-IGRP updates. The **no clns split-horizon** command disables this feature.

clns template-alias *name* *template*

no clns template-alias *name*

Use one or more **clns template-alias** global configuration commands to build a list of alphanumeric aliases of CLNS address templates for use in the definition of CLNS filter sets. The **no** form of this command deletes the alias.

<i>name</i>	Alphanumeric name to apply as an alias for the template
<i>template</i>	Address template, as defined in “Usage Guidelines” for this command in the <i>Router Products Command Reference</i> publication

[no] clns want-erpdu

Use the **clns want-erpdu** global configuration command to specify whether to request error PDUs on packets sourced by the router. The **no** form of this command removes the parameter’s settings.

[no] distance *value* [**clns**]

Use the **distance** router configuration command to configure the administrative distance for CLNS routes learned. The **no** form of this command restores the administrative distance to the default.

value Administrative distance, indicating the trustworthiness of a routing information source. This argument has a numerical value between 0 and 255. A higher relative value indicates a lower trustworthiness rating. Preference is given to routes with smaller values. Defaults are: static routes—10; ISO-IGRP routes—100; IS-IS routes—110. The default, if unspecified, is 110.

clns (Optional) CLNS-derived routes for IS-IS.

[no] domain-password [*password*]

Use the **domain-password** router configuration command to configure the routing domain authentication password. The **no** form of this command disables the password.

password Password you assign

[no] ip domain-lookup nsap

Use the **ip domain-lookup nsap** global configuration command to allow Domain Name System (DNS) queries for CLNS addresses. To disable this feature, specify the **no** form of this command.

[no] is-type {level-1 | level-1-2 | level-2-only }

Use the **is-type** router configuration command to configure the IS-IS level at which the router is to operate. The **no is-type** command resets the parameter to the default.

- level-1** Causes the router to act as a station router.
- level-1-2** Causes the router to act as both a station router and an area router. This is the default.
- level-2-only** Causes the router to act as an area router only.

[no] isis adjacency-filter name [match-all]

Use the **isis adjacency-filter** interface configuration command to filter the establishment of IS-IS adjacencies. Use the **no** form of this command to disable filtering of the establishment of IS-IS adjacencies.

- name* Name of the filter set or expression to apply.
- match-all** (Optional) All NSAP addresses must match the filter in order to accept the adjacency. If not specified (the default), only one address need match the filter in order for the adjacency to be accepted.

isis circuit-type { **level-1** | **level-1-2** | **level-2-only** }

no isis circuit-type

Use the **isis circuit-type** interface configuration command to configure the type of adjacency desired for the specified interface. The **no** form of this command resets the circuit type to Level 1 and Level 2.

level-1 Level 1 adjacency can be established if there is at least one area address in common between this system and its neighbors.

level-1-2 Level 1 and 2 adjacency is established if the neighbor is also configured as **level-1-2** and there is at least one area in common. If there is no area in common, a Level 2 adjacency is established. This is the default.

level-2-only Level 2 adjacency is established on the circuit. If the neighboring router is a Level 1 only router, no adjacency will be established.

[no] isis csnp-interval *seconds* { **level-1** | **level-2** }

Use the **isis csnp-interval** interface configuration command to configure the IS-IS complete sequence number PDUs (CSNP) interval for the specified interface. The **no** form of this command restores the default value.

seconds Time in seconds between transmission of CSNPs on multiaccess networks. (Only applies for the designated router.) The default is 10 seconds.

level-1 Interval of time between transmission of CSNPs for Level 1 independently.

level-2 Interval of time between transmission of CSNPs for Level 2 independently.

[no] isis hello-interval *seconds* {**level-1** | **level-2**}

Use the **isis hello-interval** interface configuration command to specify the length of time in seconds between hello packets that the router sends on the specified interface. The **no** form of this command restores the default value.

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| <i>seconds</i> | Unsigned integer value. A value three times the hello interval <i>seconds</i> is advertised as the <i>holdtime</i> in the hello packets transmitted. It must be the same for all routers attached to a common network. With smaller hello intervals, topological changes are detected faster, but there is more routing traffic. The default is 10 seconds. |
| level-1 | Configure the hello interval for Level 1 independently. Use this on X.25, SMDS, and Frame Relay multiaccess networks. |
| level-2 | Configure the hello interval for Level 2 independently. Use with X.25, SMDS, and Frame Relay multiaccess networks. |

isis metric *default-metric delay-metric expense-metric error-metric*
{**level-1** | **level-2**}

no isis metric {**level-1** | **level-2**}

Use the **isis metric** interface configuration command to configure the metric (or cost) for the specified interface. The **no** form of this command restores the default metric value.

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|-----------------------|---|
| <i>default-metric</i> | Metric used for the redistributed route. The range is from 0 through 63. The default value is 10. |
| <i>delay-metric</i> | Not supported. |
| <i>expense-metric</i> | Not supported. |

<i>error-metric</i>	Not supported.
level-1	The router acts as a station router (Level 1) only.
level-2	The router acts as an area router (Level 2) only.

isis password *password* {**level-1** | **level-2**}
no isis password {**level-1** | **level-2**}

Use the **isis password** interface configuration command to configure the authentication password for a specified interface. The **no** form of this command disables authentication for IS-IS.

<i>password</i>	Authentication password you assign for an interface.
level-1	Configure the authentication password for Level 1 independently. For Level 1 routing, the router acts as a station router only.
level-2	Configure the authentication password for Level 2 independently. For Level 2 routing, the router acts as an area router only.

isis priority *value* {**level-1** | **level-2**}
no isis priority {**level-1** | **level-2**}

Use the **isis priority** interface configuration command to configure the priority of this system for designated router election. The **no** form of this command resets priority to 64.

<i>value</i>	Priority of a router; a number from 0 through 127. The default is 64.
level-1	Set priority of a router for Level 1 independently.
level-2	Set priority of a router for Level 2 independently.

[no] isis retransmit-interval *seconds*

Use the **isis retransmit-interval** interface configuration command to configure the number of seconds between retransmission of IS-IS link-state PDU (LSP) retransmission for point-to-point links. The **no** form of this command restores the default value.

seconds Integer that should be greater than the expected round-trip delay between any two routers on the attached network. The setting of this parameter should be conservative, or needless retransmission will result. The value should be larger for serial lines and virtual links. The default is 5 seconds.

[no] iso-igrp adjacency-filter *name*

Use the **iso-igrp adjacency-filter** interface configuration command to filter the establishment of ISO-IGRP adjacencies. Use the **no** form of this command to disable filtering of the establishment of ISO-IGRP adjacencies.

name Name of the filter set or expression to apply.

[no] match cns address *name [name...name]*

To define the address match criterion, use the **match cns address** route-map configuration command; routes that have a network address matching one or more of the names—and that satisfy all other defined match criteria—will be redistributed. To remove the match criterion, use the **no** form of this command.

name Name of a standard address list, filter set, or expression

[no] match clns next-hop *name* [*name...name*]

Use the **match clns next-hop** route-map configuration command to define the next-hop match criterion; routes that have a next-hop router address matching one of the names—and that satisfy all other defined match criteria—will be redistributed.

name Name of an access list, filter set, or expression

[no] match clns route-source *name* [*name..name*]

Use the **match clns route-source** route-map configuration command to define the route-source match criterion; routes that have been advertised by routers at the address specified by the name—and that satisfy all other defined match criteria—will be redistributed. Use the **no** form of this command to remove the specified match criterion.

name Name of filter set or expression

[no] match interface *type number* [*type number...type number*]

Use the **match interface** route-map configuration command to define the interface match criterion; routes that have the next hop out one of the interfaces specified—and that satisfy all other defined match criteria—will be redistributed. Use the **no** form of this command to remove the specified match criterion.

type Interface type

number Interface type and number

[no] match metric *metric-value*

Use the **match metric** route-map configuration command to define the metric match criterion; routes that have the specified metric—and that satisfy all other defined match criteria—will be redistributed. Use the **no** form of this command to remove the specified match criterion.

metric-value Route metric. This can be an IGRP five-part metric.

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[no] match route-type {level-1 | level-2}

Use the **match route-type** route-map configuration command to define the route-type match criterion; routes that have the specified route type—and that satisfy all other defined match criteria—will be redistributed. Use the **no** form of the command to remove the specified match criterion.

level-1 IS-IS Level 1 routes

level-2 IS-IS Level 2 routes

metric weights *qos k1 k2 k3 k4 k5*

no metric weights

Use the **metric weights** router configuration command to specify different metrics for the ISO-IGRP routing protocol on CLNS. This command allows you to configure the metric constants used in the ISO-IGRP composite metric calculation of reliability and load. Use the **no metric weights** command to return the five *k* constants to their default values.

qos Quality of service. QOS defines transmission quality and availability of service. The value must be 0, the *default metric* value.

k1, k2, k3, k4, k5 Values that apply to ISO-IGRP for the default metric QOS. The *k* values are metric constants used in the ISO-IGRP equation that converts an IGRP metric vector into a scalar quantity. They are numbers from 0 through 127; higher numbers mean a greater multiplier effect. The defaults are *k1* = 1; *k2* = 0; *k3* = 1; *k4* = 0; *k5* = 0.

[no] net *network-entity-title*

Use the **net** router configuration command to configure a Network Entity Title (NET) for the specified routing process. The **no** form of this command removes a specific NET; you must specify the NET.

network-entity-title Area addresses for the ISO-IGRP or IS-IS area.

ping clns {*host* | *address*}

Use the **ping** user and privileged EXEC commands to send ISO CLNS echo packets to test the reachability of a remote host over a connectionless OSI network.

clns CLNS protocol.
host Host name of system to ping.
address Address of system to ping.

[no] redistribute *protocol* [*tag*] [**route-map** *map-tag*]
redistribute {**static** [**clns** | **ip**]}

Use the **redistribute** router configuration command to redistribute routing information from one domain into another routing domain. The **no** form of this command disables redistribution, or disables any of the specified keywords.

<i>protocol</i>	Type of other routing protocol that is to be redistributed as a source of routes into the current routing protocol being configured. The keywords supported are iso-igrp , isis , and static [clns]. The keyword static [clns] is used to redistribute CLNS prefix static routes. This causes the router to inject any static CLNS routes into the domain. The optional clns keyword is used when redistributing into IS-IS.
<i>tag</i>	(Optional) Meaningful name for a routing process.
route-map <i>map-tag</i>	(Optional) A route map should be interrogated to filter the importation of routes from this source routing protocol to the current routing protocol. If not specified, all routes are redistributed. If this keyword is specified, but no route map tags are listed, no routes will be imported. The argument <i>map-tag</i> is the identifier of a configured route map.

static	The keyword static is used to redistribute static routes. When used without the optional keywords, this causes the router to inject any OSI static routes into an OSI domain.
clns	(Optional) The clns keyword is used when redistributing OSI static routes into an IS-IS domain.
ip	(Optional) The ip keyword is used when redistributing IP into an IS-IS domain.

[no] route-map *map-tag* [[**permit** | **deny**] | *sequence-number*]

Use the **route-map** global configuration command, and the route-map configuration commands **match** and **set**, to define the conditions for redistributing routes from one routing protocol into another. The **no** form of this command deletes the route map.

<i>map-tag</i>	Meaningful name for the route map. The redistribute command uses this name to reference this route map. Multiple route-maps can share the same map tag name. Can either be an expression or a filter set.
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permit	If the match criteria are met for this route map, and permit is specified, the route is redistributed as controlled by the set actions. If the match criteria are not met, and permit is specified, the next route map with the same map-tag is tested. If a route passes none of the match criteria for the set of route maps sharing the same name, it is not redistributed by that set.
deny	If the match criteria are met for the route map, and deny is specified, the route is not redistributed, and no further route maps sharing the same map tag name will be examined.
<i>sequence-number</i>	Number that indicates the position a new route map is to have in the list of route maps already configured with the same name. If given with the no form of the command, it specifies the position of the route map that should be deleted.

[no] router isis [tag]

Use the **router isis** global configuration command to enable the IS-IS routing protocol on your router and to configure the IS-IS routing process. This command identifies the area the router will work in and lets the router know that it will be routing dynamically rather than statically. The **no** form of this command with the appropriate tag disables IS-IS routing for the system.

<i>tag</i>	(Optional) Meaningful name for a routing process. If it is not specified, a null tag is assumed. The argument <i>tag</i> must be unique among all CLNS router processes for a given router. The <i>tag</i> argument is used later as a reference to this process.
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[no] router iso-igrp [tag]

Use the **router iso-igrp** global configuration command to identify the area the router will work in and let it know that it will be routing dynamically using the ISO-IGRP protocol. The **no** form of this command with the appropriate tag disables ISO-IGRP routing for the system.

tag (Optional) Meaningful name for a routing process. For example, you could define a routing process named *Finance* for the Finance department, and another routing process named *Marketing* for the Marketing department. If not specified, a null tag is assumed. The *tag* argument must be unique among all CLNS router processes for a given router.

[no] set level {level-1 | level-2 | level-1-2}

Use the **set level** route-map configuration command to specify the routing level of routes to be advertised into a specified area of the routing domain. Use the **no** form of this command to disable advertising the specified routing level into a specified area.

level Redistributed routes are advertised into this specified area of the routing domain. For IS-IS destinations, the default value is **level-2**.

level-1 Inserted in IS-IS Level 1 LSPs.

level-2 Inserted in IS-IS Level 2 LSPs.

level-1-2 Inserted into both Level 1 and Level 2 IS-IS LSPs.

[no] set metric *metric-value*

Use the **set metric** route-map configuration command to set the metric value to give the redistributed routes:

metric Metric value to give the redistributed routes. There is no default value.

metric-value Route metric. This can be an IGRP five-part metric.

ISO CLNS Commands

[no] set metric-type {internal | external}

Use the **set metric-type** route-map configuration command to set the metric type to give redistributed routes:

metric-type	Metric type to give redistributed routes. There is no default value.
internal	IS-IS internal metric.
external	IS-IS external metric.

[no] set tag tag-value

Use **set tag** route-map configuration command to set a tag value to associate with the redistributed routes:

tag	Tag value to associate with the redistributed route. If not specified, the default action is to <i>forward</i> the tag in the source routing protocol onto the new destination protocol.
<i>tag-value</i>	Name for the tag.

show clns

Use the **show clns EXEC** command to display information about the CLNS network.

show clns cache

Use the **show clns cache EXEC** command to display the CLNS routing cache. The cache contains an entry for each destination that has packet switching enabled. The output of this command includes entries showing each destination for which the router has switched a packet in the recent past. This includes the router.

show clns es-neighbors [*interface-type unit*] [**detail**]

Use the **show clns es-neighbors** EXEC command to list the ES neighbors (end-system adjacencies) that this router knows about.

interface-type unit (Optional) Interface type and number.

detail (Optional) When specified, the areas associated with the End Systems are displayed. Otherwise, a summary display is provided.

show clns filter-expr [*name*] [**detail**]

Use the **show clns filter-expr** EXEC command to display one or all currently defined CLNS filter expressions.

name (Optional) Name of the filter expression to display. If none is specified, all are displayed.

detail (Optional) When specified, expressions are evaluated down to their most primitive filter set terms before being displayed.

show clns filter-set [*name*]

Use the **show clns filter-set** EXEC command to display one or all currently defined CLNS filter sets.

name (Optional) Name of the filter set to display. If none is specified, all are displayed.

show clns interface [*interface-type unit*]

Use the **show clns interface** EXEC command to list the CLNS-specific information about each interface.

interface-type unit (Optional) Interface type and number.

ISO CLNS Commands

show clns is-neighbors [*interface-type unit*] [**detail**]

Use the **show clns is-neighbors** EXEC command to display IS-IS related information for IS-IS router adjacencies. Neighbor entries are sorted according to the area in which they are located.

interface-type unit (Optional) Interface type and number.

detail (Optional) Displays the areas associated with the Intermediate Systems. If omitted, a summary display is provided.

show clns neighbors [*interface-type unit*] [**detail**]

The **show clns neighbors** EXEC command displays both ES and IS neighbors.

interface-type unit (Optional) Interface type and number.

detail (Optional) Displays the area addresses advertised by the neighbor in the hello messages. If omitted, a summary display is provided.

show clns protocol [*domain* | *area-tag*]

Use the **show clns protocol** EXEC command to list the protocol-specific information for each ISO-IGRP routing process in the router. There will always be at least two routing processes, a Level 1 and a Level 2, and there can be more.

domain (Optional) A particular ISO-IGRP routing domain.

area-tag (Optional) A particular IS-IS area.

show clns route [*nsap*]

Use the **show clns route** EXEC command to display all of the destinations to which this router knows how to route packets.

The **show clns route** command shows the IS-IS Level 2 routing table as well as static and ISO-IGRP learned prefix routes. This table stores IS-IS area addresses and prefix routes. Destinations are sorted by category.

nsap (Optional) CLNS Network Service Access Point address.

show clns traffic

Use the **show clns traffic EXEC** command to list the CLNS packets this router has seen.

show isis database [level-1] [level-2] [l1] [l2] [detail] [lspid]

Use the **show isis database EXEC** command to display the IS-IS link state database. A summary display is provided if no options are specified.

level-1 (Optional) Displays the IS-IS link state database for Level 1.

level-2 (Optional) Displays the IS-IS link state database for Level 2.

l1 (Optional) Abbreviation for the option **level-1**.

l2 (Optional) Abbreviation for the option **level-2**.

detail (Optional) When specified, the contents of each LSP is displayed. Otherwise, a summary display is provided.

lspid (Optional) Link-state protocol ID (LSPID). Displays the contents of the specified link state packet. The LSPID must be of the form xxxx.xxxx.xxxx.yy-zz or name.yy-zz. For a description of these values, see the table in the “Usage Guidelines” section on this page.

show isis routes

Use the **show isis routes EXEC** command to display the IS-IS Level 1 forwarding table for IS-IS learned routes.

ISO CLNS Commands

show route-map [*map-name*]

Use the **show route-map** EXEC command to display all route-maps configured or only the one specified.

map-name (Optional) Name of a specific route-map.

[no] timers basic *update-interval holddown-interval invalid-interval*

Use the **timers basic** router configuration command to configure ISO-IGRP timers. The **no** form of this command restores the default values.

<i>update-interval</i>	Time, in seconds, between the sending of routing updates. The default value is 90 seconds.
<i>holddown-interval</i>	Time, in seconds, a system or area router is kept in holddown state, during which routing information regarding better paths is suppressed. (A router enters into a holddown state when an update packet is received that indicates the route is unreachable. The route is marked inaccessible and advertised as unreachable. However, the route is still used for forwarding packets.) When the holddown interval expires, routes advertised by other sources are accepted and the route is no longer inaccessible. The default value is 145 seconds.
<i>invalid-interval</i>	Time, in seconds, that a route remains in the routing table after it has been determined that it is not reachable. After that length of time, the route is removed from the routing table. The default value is 135 seconds.

trace

You can use the **trace** privileged EXEC command to trace routes on a router configured with the ISO CLNS protocol.

trace clns *destination*

Use the **trace** user EXEC command to discover the CLNS routes the router's packets will actually take when traveling to their destination.

destination Destination address or host name on the command line. The default parameters for the appropriate protocol are assumed and the tracing action begins.

which-route {*nsap-address* | *clns-name*}

Use the **which-route** EXEC command if you want to know which next-hop router will be used or if you have multiple processes running and want to troubleshoot your configuration. This command displays the routing table in which the specified CLNS destination is found.

nsap-address CLNS destination network address.

clns-name Destination host name.