Oracle Solaris 11.3 Network Administration Cheatsheet

This cheatsheet includes examples of common network administration commands. For complete details, see the `dladm`(1M), `ipadm`(1M), and `route`(1M) man pages.

Note - Some of the following commands include parameters and values that are provided as examples *only*.

Commonly Used Network Administration Commands

Action	Command
Administering Profiles	
List all of the network profiles on a system.	`# netadm list`
Switch to the fixed mode by enabling the `DefaultFixed` profile.	`# netadm enable -p ncp DefaultFixed`
Administering Datalinks	
Display all the datalinks (physical and virtual) on a system.	`# dladm show-link`
Display all the physical datalinks on a system.	`# dladm show-phys`
Display all the properties for all the datalinks on a system.	`# dladm show-linkprop`
Display all the properties for a specific datalink on a system.	`# dladm show-linkprop net0`
Display a specific property for a specific datalink on a system.	`# dladm show-linkprop -p mtu net0`
Administering IP Interfaces and Addresses	
Display general information about a system's IP interfaces.	`# ipadm`
Display a system's IP interfaces and addresses.	`# ipadm show-addr`
Create an IP interface and then configure a static IPv4 address for that interface.	`# ipadm create-ip net0` `# ipadm create-addr -a 203.0.113.0/24 net0/addr`
Obtain an IP address from a DHCP server.	`# ipadm create-ip net0` `# ipadm create-addr -T dhcp net0/addr`
Create an auto-generated IPv6 address.	`# ipadm create-ip net0` `# ipadm create-addr -T addrconf net0/addr`
Change the netmask for an IP address object name (`net3/v4`) to 8.	`# ipadm set-addrprop -p prefixlen=8 net3/v4`
Configure a persistent default route for a system.	`# route -p add default 192.0.2.1/27`
Configure a persistent default route by specifying a name.	`# route -p add` *IP-address* `-name route1` `persistent: route add` *IP-address* `-name route1`
Configure a static route for a system.	`# route -p add -net 192.0.2.35/27 -gateway 192.0.2.1/27`
Configure a system's host name.	`# hostname` *hostname*
Set a system's domain name.	`# domainname` *name-of-domain*
Administering Naming Services	

Configure DNS for a system.	`# svccfg -s dns/client setprop config/`
	`nameserver=net_address: 192.0.2.1/27`
	`# svccfg -s dns/client setprop config/domain = astring:`
	` "myhost.org"`
	`# svccfg -s name-service/switch setprop config/host =`
	` astring: '"files dns"'`
	`# svcadm refresh name-service/switch`
	`# svcadm refresh dns/client`
	`# svcadm enable dns/client`

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Commonly Used IP Administration Commands

Action	Command
Administering TCP	
Display TCP protocol properties.	# **ipadm show-prop tcp**
Assign values to protocol properties.	# **ipadm set-prop [-t] -p** *property=value[,...] protocol*
Remove one value from a set of values for a given property.	# **ipadm set-prop -p** *property-=value2*
Reset a specific protocol property to its default value.	# **ipadm reset-prop -p** *property protocol*
Enable packet forwarding for all IPv4 traffic on a system.	# **ipadm set-prop -p forwarding=on ipv4**
Enable packet forwarding for all IPv6 traffic on a system.	# **ipadm set-prop -p forwarding=on ipv6**
Display the lowest port number for a non-privileged port.	# **ipadm show-prop -p smallest-nonpriv-port tcp**
Add a port to the extra privileged ports.	# **ipadm set-prop -p extra-priv-ports+=3001 tcp**
Remove a privileged port.	# **ipadm set-prop -p extra-priv-ports-=4045 tcp**
Display the ECN property.	# **ipadm show-prop -p ecn tcp**
Add an algorithm for congestion control in the TCP protocol.	# **ipadm set-prop -p cong-enabled+=***algorithm* **tcp**
Remove an algorithm for congestion control in the TCP protocol.	# **ipadm set-prop -p cong-enabled-=***algorithm* **tcp**
Replace the default algorithm for congestion control in the TCP protocol.	# **ipadm set-prop -p cong-default=***algorithm* **tcp**
Display the algorithm currently used by UDP sockets.	# **ipadm show-prop -p reuseport-lbalg udp**
Set the value of the TCP receive buffer size.	# **ipadm set-prop -p recv-buf=***value* **tcp**
Display information about IP interfaces in a system.	# **ipadm show-if**
Display information about IP interfaces and addresses in a system.	# **ipadm show-addr**
Administering IPMP Interfaces	
Create an IPMP interface.	# **ipadm create-ipmp** *ipmp-interface*
Create an underlying IP interface that can be added to the IPMP interface.	# **ipadm create-ip** *under-interface*
Add the underlying IP interfaces to the IPMP interface.	# **ipadm add-ipmp -i** *under-interface1* **[-i** *under-interface2* **...]** *ipmp-interface*
Set DHCP to manage and configure the data address for the IPMP interface.	# **ipadm create-addr -T dhcp** *ipmp-interface*
Set DHCP to manage the test addresses of the underlying interfaces in an IPMP group for probe-based failure detection.	# **ipadm create-addr -T dhcp** *under-interface*
Set one of the underlying interface as a standby interface.	# **ipadm set-ifprop -p standby=on -m ip** *under-interface*
Remove the data address from an IP interface.	# **ipadm delete-addr** *addrobj*
Remove one or more interfaces from an IPMP group.	# **ipadm remove-ipmp -i** *under-interface***[-i** *under-interface* **...]** *ipmp-interface*
Display the list of data addresses.	# **ipadm show-addr** *ipmp-interface*
Display the list of test addresses.	# **ipadm show-addr**
Move an interface to a different IPMP group.	# **ipadm add-ipmp -i** *under-interface ipmp-interface*
Remove the IP interfaces from an IPMP group.	# **ipadm add-ipmp -i** *under-interface ipmp-interface*
Remove an IPMP interface.	# **ipadm delete-ipmp** *ipmp-interface*
Administering IP Tunnel Interfaces	
Create an IP interface over an IP tunnel.	# **ipadm create-ip** *tunnel-interface*
Assign local and remote IP addresses to a tunnel interface.	# **ipadm create-addr [-t] -a local=***address***,remote=***address interface*
Unplumb the IP interface that is configured over the tunnel.	# **ipadm delete-ip** *tunnel-link*

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Commonly Used Datalink Administration Commands

Component	Action	Syntax	Example
Administering Virtual Networks			
VNIC	Create	`dladm create-vnic [-t] [-f] -l` *link* `[-R` *root-dir*`] [-m` *value* `| auto | {factory [-n` *slot-identifier*`]} | {vrrp -A {inet | inet6} -V` *vrid*`} | {random [-r` *prefix*`]}] [-v` *vlan-id*`[,`*pvlan-svid*`[,`*pvlan-type*`]]] [-P` *pkey*`] [-p` *prop=value*`[,...]]` *vnic-link*	**`# dladm create-vnic -l net0 vnic1`** **`# dladm create-vnic -l net0 -m factory -n 1 hello0`** where `-n` specifies the a factory MAC address slot to be used. **`# dladm create-vnic -m vrrp -V 21 -A inet6 -l net0 vnic0`** where `-A` specifies the address family and `-V` specifies the virtual router ID (VRID) for assigning a virtual MAC address to the VRRP VNIC.
	Display	`dladm show-vnic [-P | {-z` *zone*`[,..]}] [[-p] -o` *field*`[,..]] [-l` *link*`]` `[`*vnic-link*`]`	**`# dladm show-vnic`**
	Modify	`dladm modify-vnic [-t] [-R` *root-dir*`] -l` *link*`] [-m` *value* `| auto | {factory [-n` *slot-identifier*`]} | {vrrp -A {inet | inet6} -V` *vrid*`} | {random [-r` *prefix*`]}] [-v` *vlan-id*`]` *{vnic-link*`,[`*vnic-link* `,...] | -L` *source-link}*	**`# dladm modify-vnic -l net1 -m 2:8:20:00:01:02 vnic0`** where `-m` specifies the VNIC's MAC address based on the specified value or keyword. **`# dladm modify-vnic -l net1 -L net0`** where `-l` specifies the datalink to which the VNICs need to be moved and `-L` specifies the source datalink.
	Delete	`dladm delete-vnic [-t] [-R` *root-dir*`]` *vnic-link*	**`# dladm delete-vnic vnic0`**
VLAN VNIC	Create	`dladm create-vnic -v` *vlan-id* `-l` *link* *vnic-link*	**`# dladm create-vnic -v 101 -l net0 vnic1`**
	Modify	`dladm modify-vnic -v` *vlan-id* `-L` *source-link*	**`# dladm modify-vnic -v 123 -L net0`**
PVLAN VNIC	Create	`dladm create-vnic -v` *vlan-id*`,`*pvlan-svid*`,`*pvlan-type* `-l` *link* *vnic-link*	**`# dladm create-vnic -v 4,110,community -l net1 vnic2`**
VF VNIC	Create	`dladm create-vnic -p iov=`*value* `-l` *link* *vfvnic-link*	**`# dladm create-vnic -p iov=on -l net0 vfvnic1`**
IPoIB VNIC	Create	`dladm create-vnic -l` *link* `-P` *pkey* *vnic-link*	**`# dladm create-vnic -l net4 -P 0xffff ipoib_vnic0`**
Etherstub	Create	`dladm create-etherstub [-t] [-R` *root-dir*`]` *etherstub*	**`# dladm create-etherstub etherstub0`**
	Display	`dladm show-etherstub [-Z] [-z` *zone*`[,...]]` `[`*etherstub* `]`	**`# dladm show-etherstub`**
	Delete	`dladm delete-etherstub [- t] [-R` *root-dir*`]` *etherstub*	**`# dladm delete-etherstub etherstub0`**
VXLAN	Create	`dladm create-vxlan [-t] [-R` *root-dir*`] -p` `vni=`*vxlan-id*`,addr=`*ip_address* `[,prop=`*value*`[,...] ]` *vxlan-link*	**`# dladm create-vxlan -p addr=203.0.113.0,vni=10 vxlan1`**
	Display	`dladm show-vxlan [-P] [[-p] -o` *field*`[,...]]` `[`*vxlan-link*`]`	**`# dladm show-vxlan`**

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Component	Action	Syntax	Example
	Delete	`dladm delete-vxlan [-t] [-R` *root-dir*`]` *vxlan-link*	`# dladm delete-vxlan vxlan1`
Administering Aggregations			
Trunk aggregation	Create	`dladm create-aggr [-t] [ -R` *root-dir*`] -m` *mode*`] [-P` *policy*`] [ -L` *lacpmode*`] [-T` *time*`] [-u` *address*`] -l` *link1* `[ -l` *link2*`...]` *aggr-link*	`# dladm create-aggr -m trunk -L LACP-mode -l net0 -l net1 aggr0`
	Add links	`dladm add-aggr -l` *link1* `[-l` *link2*`...]` *aggr-link*	`# dladm add-aggr -l net3 aggr0`
	Remove a link	`dladm remove-aggr -l` *link* *aggr-link*	`# dladm remove-aggr -l net3 aggr0`
	Modify	`dladm modify-aggr [-t] [-R` *root-dir*`] [-m` *mode*`] [-P` *policy*`] [-L` *lacpmode*`] [-T` *time*`] [-u` *address*`]` *aggr-link*	`# dladm modify-aggr -L active -T short aggr0`
	Display	`dladm show-aggr [-PLxZSCv] [[-p] -o` *field*`[,...]] [-z` *zone*`[,...]]` `[`*aggr-link*`]`	`# dladm show-aggr`
	Delete	`dladm delete-aggr [-t] [-R` *root-dir*`]` *aggr-link*	`# dladm delete-aggr aggr0`
DLMP aggregation	Create	`dladm create-aggr -m dlmp -l` *link1* `[-l` *link2*`...]` *aggr-link*	`# dladm create-aggr -m dlmp -l net0 -l net1 -l net2 aggr0`
	Configure probe-based failure detection	`dladm set-linkprop -p probe-ip=+` *aggr* `dladm set-linkprop -p probe-ip=[`*source*`[,...]]+[`*target*`[,...]]` *aggr*	`# dladm set-linkprop -p probe-ip=+ aggr1`
Administering VLANs			
VLAN	Create	`dladm create-vlan [-ft] [-R` *root-dir*`] -l` *ether-link* `-v` *vid*`[,`*pvlan-svid*`[,`*pvlan-type*`]]` `[`*vlan-link*`]`	`# dladm create-vlan -l net0 -v 123 tech0`
	Display	`dladm show-vlan [-PZ] [[-p] -o` *field*`[,...]] [-z` *zone*`[,...]]` `[`*vlan-link* `]`	`# dladm show-vlan`

	Modify	`dladm modify-vlan [-t] [-R` *root-dir*`] [-l` *ether-link*`] [-v` *vid*`[,`*pvlan-svid* `[,`*pvlan-type*`]]` `[-f]]` {*vlan-link*`,[`*vlan-link*`,...]` `| -L` *source-ether-link*`}`	`# dladm modify-vlan -v 123 web1`
			
			`# dladm modify-vlan -l net1 -L net4`
			
			`# dladm modify-vlan -l net3 vlan1,vlan2,vlan3`

	Delete	`dladm delete-vlan` *vlan-link*	`# dladm delete-vlan vlan1`

PVLAN	Create	`dladm create-vlan -v` *vlan-id*`,`*pvlan-svid*`,[`*pvlan-type*`]` `[`*vlan-link*`]`	`# dladm create-vlan -v 3,100,isolated -l net0 vlan1`
			
			`# dladm create-vlan -v 3,100 -l net0 vlan1`

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Component	Action	Syntax	Example
	Modify	`dladm modify-vlan [-t] [-R` *root-dir*`] -v` *vid*`,`*pvlan-svid*`[,`*pvlan-type*`]` *vlan-link*	`# dladm modify-vlan -v 15,103,community vlan1`
Administering Bridges			
Bridge	Create	`dladm create-bridge [ -P` *protect*`] [-R` *root-dir*`] [ -p` *priority*`] [ -m` *max-age*`] [ -h` *hello-time*`] [ -d` *forward-delay*`] [ -f` *force-protocol*`] [-l` *link*`...]` *bridge-name*	`# dladm create-bridge -P stp -d 12 -l net0 -l net1 brooklyn`
	Add links	`dladm add-bridge [-R` *root-dir*`] -l` *link* `[-l` *link*`...]`*bridge-name*	`# dladm add-bridge -l net2 brooklyn`
	Modify	`dladm modify-bridge [ -P` *protect*`] [-R` *root-dir*`] [ -p` *priority*`] [ -m` *max-age*`] [ -h` *hello-time*`] [ -d` *forward-delay*`] [ -f` *force-protocol*`] [-l` *link*`...]`	`# dladm modify-bridge -P stp brooklyn`
	Display	`dladm show-bridge [-flt] [-s [-i` *interval*`]] [[-p] -o` *field*`,...]` `[`*bridge-name*`]`	`# dladm show-bridge`
	Remove links	`dladm remove-bridge [-R` *root-dir*`] -l` *link* `[- l` *link*`...]` *bridge-name*	`# dladm remove-bridge -l net0 -l net1 -l net2 charles`
	Delete Bridge	`dladm delete-bridge [-R` *root-dir*`]` *bridge-name*	`# dladm delete-bridge coronado`
Setting Link Properties			
Link Properties	Set	`dladm set-linkprop [-t] [-R` *root-dir*`] -p prop=`*value*`[,...]` *link*	`# dladm set-linkprop -p bwshare=40 vnic1` `# dladm set-linkprop -p iov=on net0`
	Reset	`dladm reset-linkprop [-t] [-R` *root-dir*`] [-p` *prop*`,...]` *link*	`# dladm reset-linkprop -p stp_priority brooklyn` `# dladm reset-linkprop -p protection vnic0`
	Display	`dladm show-linkprop [-HPZ] [[-c] -o` *field*`[,...]][- p` *prop*`[,...]] [-z` *zone*`[,...]]` `[`*link*`]`	`# dladm show-linkprop -p etsbw-lcl,etsbw-rmt,etsbw-lcl-advice vnic1`
Administering Physical Links			

Physical links	Display	`dladm show-phys [-PZ] [-Lmv] [[-p] -o` *field*`[,...]] [-H] [-z` *zone*`[,...]] [[-D` `[`*dcb-feature*`]] [-lr]] [-G]` `[`*phys-link*`]`	`# dladm show-phys -m net0`
			where `-m` specifies the list of factory MAC addresses, their slot identifiers, and their availability.
			`# dladm show-phys -o LINK,VFS-INUSE`

	Delete	`dladm delete-phys` *phys-link*	`# dladm delete-phys mgmt0`