

# Route Filtering

**regex**

- match AS\_PATH sh bgp #af #adm regexp #regex test
- match AS 100 -100\_
- [1..500] = 1-500 (XR) passes-through #pattern
- match last AS ^100\_
- (XR) neighbor-is #pattern
- match first AS -100\$
- (XR) originates-from #pattern
- limit AS\_PATH length
- (XR) length (eq|ge|le) #nr ^.+..+\$
- (XR) unique-length (eq|ge|le) #nr
- leer ^\$
- (XR) is-local
- (bgp)neighbor #IP filter-list #as-path out
- ip as-path access-list (permit|deny) #Regex

**prefix**

- (conf) as-path-set #name
- (set) ios-regex #regex
- (set) #above-cmds
- (set) end-set
- AS Path Set IOS XR
- ge-value <= prefix length <= 32 ge #
- conf-length <= prefix length <= le le #
- match all 0.0.0.0/0 le 32
- (global)ip prefix-list #name [#seq]
- [permit|deny] prefix/length
- prefix list
- (conf)prefix-set #name
- (set) #net/#len [le|ge|eq] #nr,
- (set) end-set
- prefix set IOS XR

**RPL**

- Route Policy Language
- implicite drop all
- all tests use original value
- pass, continue processing pass
- pass, stop processing done
- pass, continue processing set
- discard, stop processing drop
- call sub route-policy apply
- actions
- (conf)route-policy #name
- (policy) if #condition then
- (if)else
- (if)elseif #cond then
- (if) #action
- (if) endif
- config
- edit route-policy #name [emacs|nano|vim]
- and
- not
- or
- ()
- operators
- '\$VarName'
- #policy(#value)
- parameterization
- no spaces or special chars in parameter values

**verify**

- sh route-policy #name [inline]
- shows all policies sh rpl
- active
- not attached unused
- attached but not active inactive
- sh rpl route-policy states
- sh rpl route-policy #name attachpoints
- sh bgp #af #afm route-policy #rpl

## routemaps

route-map #name permit|deny [#seq]

- match all rules
- match
  - match any if multible lists
  - community #list
  - ip address #acl
  - tag #tag
  - () ip extcommingoty-list #name
  - (permit|deny) #com
- actions
  - set metric #v
  - set as-path prepend #as
  - set ip next-hop
  - continue continue processing
- apply to
  - (bgp) neighbor #IP route-map #name
  - (in|out)
- (ip) community-list #nr (permit | deny) 1-99 std
- #com 100-199 ext regex

## ACL

**ACL**

- topdown
- standard 1-99,1300-1999 source only
- extended 100-199,2000-2699
- not used in IOS XR
- config
  - ip access-list standard #nr|#name
  - (acl) [#seq] permit|deny #source #wildcard
  - ip access-list extended #nr|#name
- matching prefixes
  - standard source matches prefix
  - extended source matches prefix
  - extended dest matches netmask

## Outbound route filtering (ORF)

**Outbound route filtering (ORF)**

- advertise inbound filters to neighbor
- save bandwidth and cpu
- (router-af) neighbor #ip capability orf prefix (both | send | receive)
- (xr-router) orf route-policy #name if orf prefix in #list then