



CSM XML Document Type Definition

You can use this DTD to configure the CSM as described in the [“Configuring the XML Interface”](#) section on page 8-24.

The CSM XML Document Type Definition (DTD) is as follows:

```
<!--
/*
 * cisco_csm.dtd - XML DTD for CSM 3.2
 *
 * January 2002 Paul Mathison
 *
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 * All rights reserved
 */
-->

<!--
Notes:
Each element refers to a particular IOS CLI command.
Each attribute refers to a command parameter.
Except where noted, all "name" attributes are strings of length
1 to 15, with no whitespace.
IP address and mask attributes use standard "x.x.x.x" format.
-->

<!--
*****
Elements and attributes required by various other elements
*****
-->

<!ELEMENT inservice EMPTY>
<!ATTLIST inservice
sense (yes | no) #IMPLIED
>

<!ELEMENT inservice_standby EMPTY>
<!ATTLIST inservice_standby
sense (yes | no) #IMPLIED
>

<!--
backup_name is a string of length 1 to 15
backup_sticky default is "no"
-->
<!ELEMENT serverfarm_ref EMPTY>
<!ATTLIST serverfarm_ref
sense (yes | no) #IMPLIED
```

```

    name          CDATA          #REQUIRED
    backup_name   CDATA          #IMPLIED
    backup_sticky (yes | no) #IMPLIED
  >

<!--
  value is between 1 and 4294967295
-->
<!ELEMENT maxconns EMPTY>
<!ATTLIST maxconns
  sense (yes | no) #IMPLIED
  value NMTOKEN   #REQUIRED
>

<!--
  id is between 1 and 255
-->
<!ELEMENT reverse_sticky EMPTY>
<!ATTLIST reverse_sticky
  sense (yes | no) #IMPLIED
  id    NMTOKEN   #REQUIRED
>

<!--
*****
Elements and attributes required for env_variable
*****
-->

<!--
  name is a string of length 1 to 31
  expression is a string of length 0 to 127
-->
<!ELEMENT env_variable EMPTY>
<!ATTLIST env_variable
  sense      (yes | no) #IMPLIED
  name       CDATA      #REQUIRED
  expression CDATA      #REQUIRED
>

<!--
*****
Elements and attributes required for owner
*****
-->

<!--
  string is of length 1 to 200
-->
<!ELEMENT billing_info EMPTY>
<!ATTLIST billing_info
  sense (yes | no) #IMPLIED
  string CDATA     #REQUIRED
>

<!--
  string is of length 1 to 200
-->
<!ELEMENT contact_info EMPTY>
<!ATTLIST contact_info
  sense (yes | no) #IMPLIED
  string CDATA     #REQUIRED

```

```

>

<!ELEMENT owner (maxconns?, billing_info?, contact_info?)>
<!ATTLIST owner
  sense (yes | no) #IMPLIED
  name CDATA      #REQUIRED
>

<!--
*****
Elements and attributes required for vlan
*****
-->

<!ELEMENT vlan_address EMPTY>
<!ATTLIST vlan_address
  sense      (yes | no) #IMPLIED
  ipaddress  NMTOKEN    #REQUIRED
  ipmask     NMTOKEN    #REQUIRED
>

<!ELEMENT gateway EMPTY>
<!ATTLIST gateway
  sense      (yes | no) #IMPLIED
  ipaddress  NMTOKEN    #REQUIRED
>

<!--
gateway uses standard x.x.x.x format
-->
<!ELEMENT route EMPTY>
<!ATTLIST route
  sense      (yes | no) #IMPLIED
  ipaddress  NMTOKEN    #REQUIRED
  ipmask     NMTOKEN    #REQUIRED
  gateway    NMTOKEN    #REQUIRED
>

<!ELEMENT alias EMPTY>
<!ATTLIST alias
  sense      (yes | no) #IMPLIED
  ipaddress  NMTOKEN    #REQUIRED
  ipmask     NMTOKEN    #REQUIRED
>

<!--
id is between 2 and 4094
Maximum of 7 gateways per vlan
Maximum of 4095 routes per vlan
Maximum of 255 aliases per vlan
Global maximum of 255 unique vlan_addresses
Global maximum of 255 vlan gateways (including routed gateways)
-->
<!ELEMENT vlan (vlan_address?, gateway*, route*, alias*)>
<!ATTLIST vlan
  sense (yes | no)      #IMPLIED
  id    NMTOKEN         #REQUIRED
  type  (client | server) #REQUIRED
>

<!--
*****

```

```

    Elements and attributes required for script_file and script_task
    *****
-->

<!--
    url is a string of length 1 to 200
-->
<!ELEMENT script_file EMPTY>
<!ATTLIST script_file
    sense (yes | no) #IMPLIED
    url   CDATA      #REQUIRED
>

<!--
    id is between 1 and 100
    name is a string of length 1 to 31
    arguments is a string of length 0 to 199
-->
<!ELEMENT script_task EMPTY>
<!ATTLIST script_task
    sense      (yes | no) #IMPLIED
    id         NMTOKEN    #REQUIRED
    name       CDATA      #REQUIRED
    arguments  CDATA      #IMPLIED
>

<!--
    *****
    Elements and attributes required for probe
    *****
-->

<!--
    value is between 2 and 65535 (default is 300)
-->
<!ELEMENT probe_failed EMPTY>
<!ATTLIST probe_failed
    sense (yes | no) #IMPLIED
    value NMTOKEN    #REQUIRED
>

<!--
    value is between 2 and 65535 (default is 120)
-->
<!ELEMENT probe_interval EMPTY>
<!ATTLIST probe_interval
    sense (yes | no) #IMPLIED
    value NMTOKEN    #REQUIRED
>

<!--
    value is between 0 and 65535 (default is 3)
-->
<!ELEMENT probe_retries EMPTY>
<!ATTLIST probe_retries
    sense (yes | no) #IMPLIED
    value NMTOKEN    #REQUIRED
>

<!--
    value is between 1 and 65535 (default 10)
-->
<!ELEMENT probe_open EMPTY>

```

```

<!ATTLIST probe_open
  sense (yes | no) #IMPLIED
  value NMTOKEN    #REQUIRED
>

<!--
  value is between 1 and 65535 (default 10)
-->
<!ELEMENT probe_receive EMPTY>
<!ATTLIST probe_receive
  sense (yes | no) #IMPLIED
  value NMTOKEN    #REQUIRED
>

<!--
  value is between 1 and 65535
-->
<!ELEMENT probe_port EMPTY>
<!ATTLIST probe_port
  sense (yes | no) #IMPLIED
  value NMTOKEN    #REQUIRED
>

<!--
  string is of length 1 to 64
-->
<!ELEMENT probe_domain EMPTY>
<!ATTLIST probe_domain
  sense (yes | no) #IMPLIED
  string CDATA     #REQUIRED
>

<!ELEMENT probe_address EMPTY>
<!ATTLIST probe_address
  sense      (yes | no) #IMPLIED
  ipaddress NMTOKEN    #REQUIRED
  mode      (transparent | routed) "transparent"
>

<!ELEMENT probe_expect_address EMPTY>
<!ATTLIST probe_expect_address
  sense      (yes | no) #IMPLIED
  ipaddress NMTOKEN    #REQUIRED
>

<!--
  expression is a string of length 1 to 200
-->
<!ELEMENT probe_header EMPTY>
<!ATTLIST probe_header
  sense      (yes | no) #IMPLIED
  name      CDATA      #REQUIRED
  expression CDATA     #REQUIRED
>

<!--
  user is a string of length 1 to 15
  password is a string of length 1 to 15
-->
<!ELEMENT probe_credentials EMPTY>
<!ATTLIST probe_credentials
  sense      (yes | no) #IMPLIED
  user      CDATA      #REQUIRED
  password  CDATA      ""

```

```

>

<!--
  url is a string of length 1 to 200
-->
<!ELEMENT probe_request EMPTY>
<!ATTLIST probe_request
  sense (yes | no) #IMPLIED
  method (get | head) #REQUIRED
  url CDATA "/"
>

<!--
  min_code is between 0 and 999
  max_code default is match min_code
-->
<!ELEMENT probe_expect_status EMPTY>
<!ATTLIST probe_expect_status
  sense (yes | no) #IMPLIED
  min_code NMTOKEN #REQUIRED
  max_code NMTOKEN #IMPLIED
>

<!--
  name is a string of length 1 to 31
  arguments is a string of length 0 to 199
-->
<!ELEMENT script_ref EMPTY>
<!ATTLIST script_ref
  sense (yes | no) #IMPLIED
  name CDATA #REQUIRED
  arguments CDATA #IMPLIED
>

<!--
  secret is a string of length 1 to 32
-->
<!ELEMENT probe_secret EMPTY>
<!ATTLIST probe_secret
  sense (yes | no) #IMPLIED
  secret CDATA #REQUIRED
>

<!--
  Maximum of 255 probe_headers per http_probe
  probe_address must use mode "routed"
-->
<!ELEMENT http_probe (probe_failed?, probe_interval?, probe_retries?,
  probe_open?, probe_receive?, probe_port?, probe_address?,
  probe_request?, probe_credentials?, probe_header*,
  probe_expect_status*)
>

<!--
  Maximum of 255 probe_expect_addresses per dns_probe
  probe_address must use mode "routed"
-->
<!ELEMENT dns_probe (probe_failed?, probe_interval?, probe_retries?,
  probe_receive?, probe_port?, probe_address?, probe_domain?,
  probe_expect_address*)
>

<!--
  probe_address must use mode "transparent"
-->

```

```

-->
<!ELEMENT icmp_probe (probe_failed?, probe_interval?, probe_retries?,
                      probe_receive?, probe_address?)
>

<!ELEMENT tcp_probe (probe_failed?, probe_interval?, probe_retries?,
                    probe_open?, probe_port?)
>

<!ELEMENT udp_probe (probe_failed?, probe_interval?, probe_retries?,
                    probe_receive?, probe_port?)
>

<!ELEMENT smtp_probe (probe_failed?, probe_interval?, probe_retries?,
                     probe_open?, probe_receive?, probe_port?,
                     probe_expect_status*)
>

<!ELEMENT telnet_probe (probe_failed?, probe_interval?, probe_retries?,
                      probe_open?, probe_receive?, probe_port?,
                      probe_expect_status*)
>

<!ELEMENT ftp_probe (probe_failed?, probe_interval?, probe_retries?,
                    probe_open?, probe_receive?, probe_port?,
                    probe_expect_status*)
>

<!ELEMENT script_probe (probe_failed?, probe_interval?, probe_retries?,
                      probe_open?, probe_receive?, probe_port?, script_ref?)
>

<!--
  probe_address must use mode "routed"
-->
<!ELEMENT kalap_udp_probe (probe_failed?, probe_interval?, probe_retries?,
                          probe_receive?, probe_port?, probe_address?,
                          probe_secret?)
>

<!--
  probe_address must use mode "routed"
-->
<!ELEMENT kalap_tcp_probe (probe_failed?, probe_interval?, probe_retries?,
                          probe_open?, probe_receive?, probe_port?,
                          probe_address?, probe_secret?)
>

<!ELEMENT probe (http_probe | dns_probe | icmp_probe | tcp_probe | udp_probe |
                smtp_probe | telnet_probe | ftp_probe | script_probe |
                kalap_udp_probe | kalap_tcp_probe)
>
<!ATTLIST probe
  sense (yes | no)                #IMPLIED
  name CDATA                      #REQUIRED
  type (http | dns | icmp | tcp | udp |
        smtp | telnet | ftp | script |
        kal-ap-udp | kal-ap-tcp)  #REQUIRED
>

<!--
*****
  Elements and attributes required for natpool
*****

```

```

-->

<!--
  Global maximum of 255 natpool addresses
-->
<!ELEMENT natpool EMPTY>
<!ATTLIST natpool
  sense      (yes | no) #IMPLIED
  name       CDATA      #REQUIRED
  first_ip   NMTOKEN    #REQUIRED
  last_ip    NMTOKEN    #REQUIRED
  ipmask     NMTOKEN    #REQUIRED
>

<!--
*****
  Elements and attributes required by maps
*****
-->

<!--
  url is a string of length 1 to 200
  method is a string of length 1 to 15 (e.g. GET)
-->
<!ELEMENT url_rule EMPTY>
<!ATTLIST url_rule
  sense      (yes | no) #IMPLIED
  url        CDATA      #REQUIRED
  method     CDATA      #IMPLIED
>

<!--
  name is a string of length 1 to 63
  expression is a string of length 1 to 127
-->
<!ELEMENT cookie_rule EMPTY>
<!ATTLIST cookie_rule
  sense      (yes | no) #IMPLIED
  name       CDATA      #REQUIRED
  expression CDATA      #REQUIRED
>

<!--
  name is a string of length 1 to 63
  expression is a string of length 1 to 127
-->
<!ELEMENT header_rule EMPTY>
<!ATTLIST header_rule
  sense      (yes | no) #IMPLIED
  name       CDATA      #REQUIRED
  expression CDATA      #REQUIRED
  type       (match | insert) "match"
>

<!--
  min_code and max_code are between 100 and 599
  threshold is between 1 and 4294967295, no effect for count action
  reset is between 0 and 4294967295 (0 means no reset)
-->
<!ELEMENT retcode_rule EMPTY>
<!ATTLIST retcode_rule
  sense      (yes | no)          #IMPLIED
  min_code   NMTOKEN            #REQUIRED

```

```

        max_code  NMTOKEN                #REQUIRED
        action    (count | log | remove) #REQUIRED
        threshold NMTOKEN                #REQUIRED
        reset     NMTOKEN                "0"
    >

<!--
    domain is a string of length 1 to 127
-->
<!ELEMENT dns_rule EMPTY>
<!ATTLIST dns_rule
    sense (yes | no) #IMPLIED
    domain CDATA     #REQUIRED
>

<!--
    Maximum of 1023 url_rules per map
-->
<!ELEMENT url_map (url_rule*)>
<!ATTLIST url_map
    sense (yes | no) #IMPLIED
    name  CDATA     #REQUIRED
>

<!--
    Maximum of 5 cookie_rules per map
-->
<!ELEMENT cookie_map (cookie_rule*)>
<!ATTLIST cookie_map
    sense (yes | no) #IMPLIED
    name  CDATA     #REQUIRED
>

<!--
    Maximum of 5 header_rules per map
-->
<!ELEMENT header_map (header_rule*)>
<!ATTLIST header_map
    sense (yes | no) #IMPLIED
    name  CDATA     #REQUIRED
>

<!--
    Maximum of 100 retcodes (not ranges) per map
-->
<!ELEMENT retcode_map (retcode_rule*)>
<!ATTLIST retcode_map
    sense (yes | no) #IMPLIED
    name  CDATA     #REQUIRED
>

<!--
    Maximum of 16 dns_rules per map
-->
<!ELEMENT dns_map (dns_rule*)>
<!ATTLIST dns_map
    sense (yes | no) #IMPLIED
    name  CDATA     #REQUIRED
>

<!--
*****
    Elements and attributes required for redirect_server
*****

```

```

-->

<!--
  value is between 1 and 65535
-->
<!ELEMENT ssl_port EMPTY>
<!ATTLIST ssl_port
  sense (yes | no) #IMPLIED
  value NMTOKEN    #REQUIRED
>

<!--
  string is of length 1 to 127
-->
<!ELEMENT redirect_relocate EMPTY>
<!ATTLIST redirect_relocate
  sense (yes | no) #IMPLIED
  string CDATA    #REQUIRED
  code (301 | 302) "302"
>

<!--
  string is of length 1 to 127
-->
<!ELEMENT redirect_backup EMPTY>
<!ATTLIST redirect_backup
  sense (yes | no) #IMPLIED
  string CDATA    #REQUIRED
  code (301 | 302) "302"
>

<!ELEMENT redirect_server (ssl_port?, redirect_relocate?, redirect_backup?,
                           inservice?)
>
<!ATTLIST redirect_server
  sense (yes | no) #IMPLIED
  name CDATA      #REQUIRED
>

<!--
*****
Elements and attributes required for named_real_server
*****
-->

<!--
  string is of length 0 to 63
-->
<!ELEMENT location EMPTY>
<!ATTLIST location
  sense (yes | no) #IMPLIED
  string CDATA    #REQUIRED
>

<!ELEMENT real_address EMPTY>
<!ATTLIST real_address
  sense (yes | no) #IMPLIED
  ipaddress NMTOKEN #REQUIRED
>

<!ELEMENT named_real_server (real_address?, location?)>
<!ATTLIST named_real_server
  sense (yes | no) #IMPLIED

```

```

    name CDATA      #REQUIRED
  >

  <!--
  *****
  Elements and attributes required for real_server
  *****
  -->

  <!--
    value is between 0 and 100
  -->
  <!ELEMENT weight EMPTY>
  <!ATTLIST weight
    sense (yes | no) #IMPLIED
    value NMTOKEN   #REQUIRED
  >

  <!--
    value is between 1 and 4294967295
  -->
  <!ELEMENT minconns EMPTY>
  <!ATTLIST minconns
    sense (yes | no) #IMPLIED
    value NMTOKEN   #REQUIRED
  >

  <!--
    value is between 2 and 254 (default is 254)
  -->
  <!ELEMENT load_threshold EMPTY>
  <!ATTLIST load_threshold
    sense (yes | no) #IMPLIED
    value NMTOKEN   #REQUIRED
  >

  <!--
    tag is a string of length 0 to 32
  -->
  <!ELEMENT real_probe_ref EMPTY>
  <!ATTLIST real_probe_ref
    sense (yes | no) #IMPLIED
    name CDATA      #REQUIRED
    tag CDATA       #IMPLIED
  >

  <!--
    either ipaddress or named_real_server_ref is required
    port is between 0 and 65535 (0 means no port translation)
  -->
  <!ELEMENT real_server_backup EMPTY>
  <!ATTLIST real_server_backup
    sense (yes | no) #IMPLIED
    ipaddress NMTOKEN #IMPLIED
    named_real_server_ref CDATA #IMPLIED
    port NMTOKEN "0"
  >

  <!--
    either ipaddress or named_real_server_ref is required
    port is between 0 and 65535 (0 means no port translation)
    Global maximum of 4095 real_servers
  -->

```

```

<!ELEMENT real_server (weight?, minconns?, maxconns?, load_threshold?,
                      real_probe_ref?, real_server_backup?, inservice?,
                      inservice_standby?)
>
<!ATTLIST real_server
  sense          (yes | no) #IMPLIED
  ipaddress      NMTOKEN   #IMPLIED
  named_real_server_ref CDATA   #IMPLIED
  port           NMTOKEN   "0"
>

<!--
*****
Elements and attributes required for serverfarm
*****
-->

<!ELEMENT retcode_map_ref EMPTY>
<!ATTLIST retcode_map_ref
  sense (yes | no) #IMPLIED
  name  CDATA      #REQUIRED
>

<!--
  retries is between 0 and 65534
  failed is between 0 and 65535
-->
<!ELEMENT health EMPTY>
<!ATTLIST health
  sense (yes | no) #IMPLIED
  retries NMTOKEN #REQUIRED
  failed  NMTOKEN #REQUIRED
>

<!ELEMENT failaction EMPTY>
<!ATTLIST failaction
  sense (yes | no) #IMPLIED
  value (purge | reassign) #REQUIRED
>

<!ELEMENT probe_ref EMPTY>
<!ATTLIST probe_ref
  sense (yes | no) #IMPLIED
  name  CDATA      #REQUIRED
>

<!ELEMENT natpool_ref EMPTY>
<!ATTLIST natpool_ref
  sense (yes | no) #IMPLIED
  name  CDATA      #REQUIRED
>

<!ELEMENT server_nat EMPTY>
<!ATTLIST server_nat
  sense (yes | no) #IMPLIED
>

<!--
  value is between 0 and 65533
-->
<!ELEMENT bind_id EMPTY>
<!ATTLIST bind_id
  sense (yes | no) #IMPLIED

```

```

    value NMTOKEN      #REQUIRED
  >

  <!--
    hash_ip_type and ipmask valid only when value = hash_ip
  -->
  <!ELEMENT predictor EMPTY>
  <!ATTLIST predictor
    sense      (yes | no)          #IMPLIED
    value      (roundrobin | leastconns |
               hash_ip | hash_url | forward) #REQUIRED
    hash_ip_type (source | destination | both) "both"
    ipmask      NMTOKEN            "255.255.255.255"
  >

  <!ELEMENT dns_predictor EMPTY>
  <!ATTLIST dns_predictor
    sense      (yes | no)          #IMPLIED
    value      (roundrobin | ordered-list |
               leastload | hash_domain |
               hash_ip | hash_ip_domain) #REQUIRED
  >

  <!ELEMENT serverfarm (predictor?, natpool_ref?, server_nat?, health?,
                       bind_id?, retcode_map_ref?, failaction?,
                       redirect_server*, real_server*, probe_ref*)
  >
  <!ATTLIST serverfarm
    sense (yes | no) #IMPLIED
    name  CDATA      #REQUIRED
  >

  <!--
    real_server "port" attribute is ignored
  -->
  <!ELEMENT dns_serverfarm (dns_predictor?, real_server*)>
  <!ATTLIST dns_serverfarm
    sense (yes | no) #IMPLIED
    name  CDATA      #REQUIRED
    type  (dns-vip | dns-ns) #REQUIRED
  >

  <!--
  *****
  Elements and attributes required for sticky_group
  *****
  -->

  <!--
    src_ip and dest_ip are necessary for IP-based sticky_groups
    expression is necessary for SSL, cookie, and header-based sticky_groups
    expression is a string of length 0 to 127
  -->
  <!ELEMENT static_sticky EMPTY>
  <!ATTLIST static_sticky
    sense      (yes | no) #IMPLIED
    real_ip     NMTOKEN   #REQUIRED
    expression  NMTOKEN   #IMPLIED
    src_ip      NMTOKEN   #IMPLIED
    dest_ip     NMTOKEN   #IMPLIED
  >

  <!--

```

```

    This only applies to cookie and header-based sticky_groups
    offset is between 0 and 3999
    length is between 1 and 4000
-->
<!ELEMENT sticky_offset EMPTY>
<!ATTLIST sticky_offset
    sense (yes | no) #IMPLIED
    offset NMTOKEN #REQUIRED
    length NMTOKEN #REQUIRED
>

<!--
    This only applies to cookie-based sticky_groups
    name is a string of length 1 to 63
-->
<!ELEMENT cookie_secondary EMPTY>
<!ATTLIST cookie_secondary
    sense (yes | no) #IMPLIED
    name CDATA #REQUIRED
>

<!--
    id is between 1 and 255
    timeout is between 1 and 65535
    ipmask required for ip types
    cookie is a string of length 1 to 63, req for type=cookie or cookie_insert
    header is a string of length 1 to 63, req for type=header
-->
<!ELEMENT sticky_group (sticky_offset?, cookie_secondary?, static_sticky*)>
<!ATTLIST sticky_group
    sense (yes | no) #IMPLIED
    id NMTOKEN #REQUIRED
    timeout NMTOKEN "1440"
    type (ip | cookie | ssl |
        ip_src | ip_dest | ip_src_dest |
        cookie_insert | header) #REQUIRED
    ipmask NMTOKEN #IMPLIED
    cookie CDATA #IMPLIED
    header CDATA #IMPLIED
>

<!--
*****
    Elements and attributes required for policy
*****
-->

<!ELEMENT url_map_ref EMPTY>
<!ATTLIST url_map_ref
    sense (yes | no) #IMPLIED
    name CDATA #REQUIRED
>

<!ELEMENT cookie_map_ref EMPTY>
<!ATTLIST cookie_map_ref
    sense (yes | no) #IMPLIED
    name CDATA #REQUIRED
>

<!ELEMENT header_map_ref EMPTY>
<!ATTLIST header_map_ref
    sense (yes | no) #IMPLIED
    name CDATA #REQUIRED
>

```

```

>

<!ELEMENT dns_map_ref EMPTY>
<!ATTLIST dns_map_ref
  sense (yes | no) #IMPLIED
  name CDATA      #REQUIRED
>

<!--
  order is between 1 and 3 (corresponds to "primary", "secondary", "tertiary")
  ttl is between 1 and 604800 (default is 20)
  response_count is between 1 and 8 (default is 1)
-->
<!ELEMENT dns_serverfarm_ref EMPTY>
<!ATTLIST dns_serverfarm_ref
  sense (yes | no) #IMPLIED
  order NMTOKEN   #REQUIRED
  name CDATA      #REQUIRED
  ttl NMTOKEN     #IMPLIED
  response_count NMTOKEN #IMPLIED
>

<!--
  Reference to an IOS standard IP access list
  Specify either the id (range 1 to 99) or name
  name is a string of length 1 to 200
-->
<!ELEMENT client_group_ref EMPTY>
<!ATTLIST client_group_ref
  sense (yes | no) #IMPLIED
  name CDATA      #IMPLIED
  id NMTOKEN      #IMPLIED
>

<!--
  id is between 1 and 255
-->
<!ELEMENT sticky_group_ref EMPTY>
<!ATTLIST sticky_group_ref
  sense (yes | no) #IMPLIED
  id NMTOKEN      #REQUIRED
>

<!--
  value is between 0 and 63
-->
<!ELEMENT dscp EMPTY>
<!ATTLIST dscp
  sense (yes | no) #IMPLIED
  value NMTOKEN   #REQUIRED
>

<!ELEMENT policy (serverfarm_ref?, client_group_ref?, sticky_group_ref?,
  reverse_sticky?, dscp?, url_map_ref?, cookie_map_ref?,
  header_map_ref?)
>
<!ATTLIST policy
  sense (yes | no) #IMPLIED
  name CDATA      #REQUIRED
>

<!--
  Maximum of 3 dns_serverfarm_refs per dns_policy (one for each order)
-->

```

```

<!ELEMENT dns_policy (dns_serverfarm_ref*, client_group_ref?, dns_map_ref?)>
<!ATTLIST dns_policy
  sense (yes | no) #IMPLIED
  name CDATA      #REQUIRED
>

<!--
*****
Elements and attributes required for vserver
*****
-->

<!--
  protocol is between 0 and 255 (0 = any, 1 = icmp, 6 = tcp, 17 = udp)
  port is between 0 and 65535 (0 means any)
  ftp and termination service valid only for tcp protocol
  rtsp service valid for tcp and udp protocol
  per-packet service valid only for non-tcp protocols
-->
<!ELEMENT virtual EMPTY>
<!ATTLIST virtual
  sense      (yes | no)      #IMPLIED
  ipaddress  NMTOKEN        #REQUIRED
  ipmask     NMTOKEN        "255.255.255.255"
  protocol   NMTOKEN        #REQUIRED
  port       NMTOKEN        #REQUIRED
  service    (none | ftp | rtsp |
             termination | per-packet) "none"
>

<!ELEMENT client EMPTY>
<!ATTLIST client
  sense      (yes | no) #IMPLIED
  ipaddress  NMTOKEN   #REQUIRED
  ipmask     NMTOKEN   "255.255.255.255"
  exclude    (yes | no) "no"
>

<!--
  timeout is between 1 and 65535
  group is between 0 and 255 (if nonzero, refers to an ip sticky_group)
-->
<!ELEMENT sticky EMPTY>
<!ATTLIST sticky
  sense      (yes | no) #IMPLIED
  timeout    NMTOKEN   #REQUIRED
  group      NMTOKEN   "0"
  ipmask     NMTOKEN   "255.255.255.255"
>

<!ELEMENT policy_ref EMPTY>
<!ATTLIST policy_ref
  sense (yes | no) #IMPLIED
  name  CDATA      #REQUIRED
>

<!ELEMENT dns_policy_ref EMPTY>
<!ATTLIST dns_policy_ref
  sense (yes | no) #IMPLIED
  name  CDATA      #REQUIRED
>

<!--

```

```

begin and end are strings, 0-length ok
total length of begin and end should not exceed 200
-->
<!ELEMENT url_hash EMPTY>
<!ATTLIST url_hash
  sense (yes | no) #IMPLIED
  begin CDATA      #REQUIRED
  end   CDATA      #REQUIRED
>

<!--
  value is between 2 and 4094
-->
<!ELEMENT vlan_id EMPTY>
<!ATTLIST vlan_id
  sense (yes | no) #IMPLIED
  value NMTOKEN   #REQUIRED
>

<!--
  value is between 2 and 65535
-->
<!ELEMENT idle EMPTY>
<!ATTLIST idle
  sense (yes | no) #IMPLIED
  value NMTOKEN   #REQUIRED
>

<!--
  value is between 1 and 65535
-->
<!ELEMENT pending EMPTY>
<!ATTLIST pending
  sense (yes | no) #IMPLIED
  value NMTOKEN   #REQUIRED
>

<!ELEMENT replicate_csrp EMPTY>
<!ATTLIST replicate_csrp
  sense (yes | no)          #IMPLIED
  value (sticky | connection) #REQUIRED
>

<!ELEMENT advertise EMPTY>
<!ATTLIST advertise
  sense (yes | no)          #IMPLIED
  value (always | active) #REQUIRED
>

<!ELEMENT persistent EMPTY>
<!ATTLIST persistent
  sense (yes | no) #IMPLIED
>

<!--
  value is between 1 and 4000
-->
<!ELEMENT parse_length EMPTY>
<!ATTLIST parse_length
  sense (yes | no) #IMPLIED
  value NMTOKEN   #REQUIRED
>

<!--

```

```

    string is of length 1 to 127
-->
<!ELEMENT domain EMPTY>
<!ATTLIST domain
    sense (yes | no) #IMPLIED
    string CDATA      #REQUIRED
>

<!ELEMENT unidirectional EMPTY>
<!ATTLIST unidirectional
    sense (yes | no | default) #IMPLIED
>

<!ELEMENT owner_ref EMPTY>
<!ATTLIST owner_ref
    sense (yes | no) #IMPLIED
    name CDATA      #REQUIRED
>

<!--
    offset is between 0 and 3999
    length is between 1 and 4000
-->
<!ELEMENT ssl_sticky_offset EMPTY>
<!ATTLIST ssl_sticky_offset
    sense (yes | no) #IMPLIED
    offset NMTOKEN #REQUIRED
    length NMTOKEN #REQUIRED
>

<!--
    Maximum of 1023 domains per vserver
    Default idle is 3600
    Default pending is 30
-->
<!ELEMENT vserver (virtual?, vlan_id?, unidirectional?, owner_ref?,
    maxconns?, ssl_sticky_offset?, idle?, pending?,
    replicate_csrp?, advertise?, persistent?, parse_length?,
    inservice?, url_hash?, policy_ref*, domain*,
    serverfarm_ref?, sticky?, reverse_sticky?, client*)
>
<!ATTLIST vserver
    sense (yes | no) #IMPLIED
    name CDATA      #REQUIRED
>

<!ELEMENT dns_vserver (inservice?, dns_policy_ref*)>
<!ATTLIST dns_vserver
    sense (yes | no) #IMPLIED
    name CDATA      #REQUIRED
>

<!--
*****
Elements and attributes required for dfp
*****
-->

<!--
    port is between 1 and 65535
-->
<!ELEMENT dfp_manager EMPTY>
<!ATTLIST dfp_manager

```

```

    sense (yes | no) #IMPLIED
    port NMTOKEN      #REQUIRED
  >

<!--
  port is between 1 and 65535
  timeout is between 0 and 65535
  retry is between 0 and 65535 (must specify timeout)
  interval is between 1 and 65535 (must specify retry)
-->
<!ELEMENT dfp_agent EMPTY>
<!ATTLIST dfp_agent
  sense      (yes | no) #IMPLIED
  ipaddress  NMTOKEN   #REQUIRED
  port       NMTOKEN   #REQUIRED
  timeout    NMTOKEN   "0"
  retry      NMTOKEN   "0"
  interval   NMTOKEN   "180"
>

<!--
  password is a string of length 1 to 64
  timeout is between 0 and 65535
-->
<!ELEMENT dfp (dfp_manager?, dfp_agent*)>
<!ATTLIST dfp
  sense      (yes | no) #IMPLIED
  password   CDATA     #IMPLIED
  timeout    NMTOKEN   "180"
>

<!--
*****
  Elements and attributes required for udp_capp
*****
-->

<!--
  secret is a string of length 1 to 32
-->
<!ELEMENT capp_options EMPTY>
<!ATTLIST capp_options
  sense      (yes | no) #IMPLIED
  ipaddress  NMTOKEN   #REQUIRED
  encryption (md5)     "md5"
  secret     CDATA     #REQUIRED
>

<!--
  value is between 1 and 65535
-->
<!ELEMENT capp_port EMPTY>
<!ATTLIST capp_port
  sense (yes | no) #IMPLIED
  value NMTOKEN   #REQUIRED
>

<!ELEMENT capp_secure EMPTY>
<!ATTLIST capp_secure
  sense (yes | no) #IMPLIED
>

<!--

```

```

    Maximum of 16 capp_options
    Default capp_port is 5002
-->
<!ELEMENT udp_capp (capp_port?, capp_secure?, capp_options*)>
<!ATTLIST udp_capp
    sense (yes | no) #IMPLIED
>

<!--
*****
Elements and attributes required for ft
*****
-->

<!ELEMENT ft_preempt EMPTY>
<!ATTLIST ft_preempt
    sense (yes | no) #IMPLIED
>

<!--
    value is between 1 and 254
-->
<!ELEMENT ft_priority EMPTY>
<!ATTLIST ft_priority
    sense (yes | no) #IMPLIED
    value NMTOKEN    #REQUIRED
>

<!--
    value is between 1 and 65535
-->
<!ELEMENT ft_failover EMPTY>
<!ATTLIST ft_failover
    sense (yes | no) #IMPLIED
    value NMTOKEN #REQUIRED
>

<!--
    value is between 1 and 65535
-->
<!ELEMENT ft_heartbeat EMPTY>
<!ATTLIST ft_heartbeat
    sense (yes | no) #IMPLIED
    value NMTOKEN    #REQUIRED
>

<!--
    group is between 1 and 254
    vlan_id is between 2 and 4094, and must *not* match id of
        existing client or server vlan configured for csm_module
    Default ft_preempt is off
    Default ft_priority is 10
    Default ft_failover is 3
    Default ft_heartbeat is 1
-->
<!ELEMENT ft (ft_preempt?, ft_priority?, ft_failover?, ft_heartbeat?)>
<!ATTLIST ft
    sense (yes | no) #IMPLIED
    group NMTOKEN    #REQUIRED
    vlan_id NMTOKEN  #REQUIRED
>

```

```

<!--
*****
Elements and attributes required for static_nat
*****
-->

<!ELEMENT static_real EMPTY>
<!ATTLIST static_real
  sense      (yes | no) #IMPLIED
  ipaddress  NMTOKEN   #REQUIRED
  ipmask     NMTOKEN   "255.255.255.255"
>

<!--
  ipaddress is required for type=ip
  Global maximum of 16383 static_reals
-->
<!ELEMENT static_nat (static_real*)>
<!ATTLIST static_nat
  sense      (yes | no)          #IMPLIED
  type       (drop | ip | virtual) #REQUIRED
  ipaddress  NMTOKEN            #IMPLIED
>

<!--
*****
Elements and attributes required for static_arp
*****
-->

<!--
  macaddress has the form "hhhh.hhhh.hhhh", where h is a hex digit
  vlan_id is between 2 and 4094
-->
<!ELEMENT static_arp EMPTY>
<!ATTLIST static_arp
  sense      (yes | no) #IMPLIED
  ipaddress  NMTOKEN   #REQUIRED
  macaddress NMTOKEN   #REQUIRED
  vlan_id    NMTOKEN   #REQUIRED
>

<!--
*****
  root definition for csm_module
*****
-->

<!--
  slot is between 1 and MAXSLOT (depends on chassis)
  Maximum of 4095 probes
  Maximum of 1023 url_maps
  Maximum of 1023 cookie_maps
  Maximum of 1023 header_maps
  Maximum of 1023 retcode_maps
  Maximum of 1023 dns_maps
  Maximum of 4095 serverfarms and dns_serverfarms
  Maximum of 255 sticky_groups (including those id=0 groups created
  implicitly for vservers)
  Maximum of 4000 vservers and dns_vservers
  Maximum of 255 owners
  Maximum of 16383 static_arp entries
-->

```

```

-->
<!ELEMENT csm_module (env_variable*, owner*, vlan*, script_file*, script_task*,
                    probe*, natpool*, url_map*, cookie_map*, header_map*,
                    retcode_map*, dns_map*, named_real_server*,
                    serverfarm*, dns_serverfarm*, sticky_group*,
                    policy*, dns_policy*, vserver*, dns_vserver*,
                    dfp?, udp_capp?, ft?, static_nat*, static_arp*)
>
<!ATTLIST csm_module
    sense (yes | no) #IMPLIED
    slot  NMTOKEN   #REQUIRED
>

<!--
*****
actions
*****
-->

<!--
error_tolerance is a 32-bit value, specified
in hex or decimal, which acts as a bitmask
for specifying which error types should be
ignored. See valid error types below. Default is 0x0048.
dtd_version is a string that specifies the set of
configurable CSM features, and should match the CSM version
specified at the top of this DTD. Default is "2.2".
Note that if the version is higher than the CSM can
handle, an error may be returned. In most cases,
the CSM will do its best to interpret the document,
even if dtd_version is missing or higher than expected.
-->
<!ELEMENT config (csm_module)>
<!ATTLIST config
    error_tolerance NMTOKEN #IMPLIED
    dtd_version     NMTOKEN #IMPLIED

<!--
*****
In case of error, the response document will include an "error" child element
in the offending element. The error element takes the form:
<!ELEMENT error EMPTY>
<!ATTLIST error
    code NMTOKEN #REQUIRED
>
The body of the error element is a description string.
Attribute "code" is a hex value representing a mask of possible error codes:
XML_ERR_INTERNAL           = 0x0001 /* internal memory or coding error */
XML_ERR_COMM_FAILURE      = 0x0002 /* communication failure */
XML_ERR_WELLFORMEDNESS    = 0x0004 /* not a wellformed XML document */
XML_ERR_ATTR_UNRECOGNIZED = 0x0008 /* found an unrecognized attribute */
XML_ERR_ATTR_INVALID     = 0x0010 /* found invalid value in attribute */
XML_ERR_ATTR_MISSING     = 0x0020 /* required attribute missing */
XML_ERR_ELEM_UNRECOGNIZED = 0x0040 /* found an unrecognized element */
XML_ERR_ELEM_INVALID     = 0x0080 /* found invalid element */
XML_ERR_ELEM_MISSING     = 0x0100 /* required element missing */
XML_ERR_ELEM_CONTEXT     = 0x0200 /* valid element found in wrong place */
XML_ERR_IOS_PARSER       = 0x0400 /* IOS unable to parse command */
XML_ERR_IOS_MODULE_IN_USE = 0x0800 /* Another user is configuring CSM */
XML_ERR_IOS_WRONG_MODULE = 0x1000 /* Tried to configure unavailable CSM */
XML_ERR_IOS_CONFIG       = 0x2000 /* IOS configuration error */
*****

```