

9. Services, Ports and Protocols

Entries in the services, ports, and protocols table are represented as component assemblies, with the component-type flag set to "service". Use a protocol assembly for each protocol associated with the service. For a single port, set the port-range start flag and end flag to the same value.

9 Services, Ports, and Protocols

Table 9.1 lists the service names, port numbers, and transport protocols enabled in <Insert CSO Name>. These must be specifically called out per the security control requirements in CM-7, CM-7(1), RA-5, SA-4, SA-9(2), and SA-9(4).

Table 9.1 <Insert CSO Name> Services, Ports, and Protocols

Service Name	Port #	Transport Protocol	Reference #	Purpose	Used By

OSCAL Representation

```
system-security-plan:
  uuid: 11111111-2222-4000-8000-000000000000
  system-implementation:
    components:
      - uuid: 11111111-2222-4000-8000-0090000500004
        type: service
        title: API Service
        description: 'A service offered by this system to external systems, such as
          an API. As a result, communication crosses the boundary.

          Describe the service and what it is used for.'
        props:
          - name: implementation-point
```

```
    value: internal
- name: public
  value: 'yes'
- name: information-type
  ns: http://fedramp.gov/ns/oscal
  value: C.3.5.1
  class: incoming
- name: information-type
  ns: http://fedramp.gov/ns/oscal
  value: C.3.5.8
  class: outgoing
- name: connection-security
  ns: http://fedramp.gov/ns/oscal
  value: tls-1.3
- name: authentication-method
  ns: http://fedramp.gov/ns/oscal
  value: 'yes'
- name: nature-of-agreement
  ns: http://fedramp.gov/ns/oscal
  value: other
- name: allows-authenticated-scan
  value: 'no'
- name: scan-type
  ns: http://fedramp.gov/ns/oscal
  value: infrastructure
links:
- href: '#11111111-2222-4000-8000-009000100003'
  rel: used-by
- href: '#11111111-2222-4000-8000-009000100004'
  rel: used-by
- href: '#11111111-2222-4000-8000-001000000048'
  rel: poam-item
  resource-fragment: 11111111-3333-4000-8000-000000000004
- href: https://api.example.com/v1
  rel: api
status:
  state: operational
responsible-roles:
- role-id: administrator
  props:
```

```

- name: privilege-uuid
  ns: http://fedramp.gov/ns/oscal
  value: 11111111-2222-4000-8000-008000000004
party-uuids:
- 11111111-2222-4000-8000-004000000010
- 11111111-2222-4000-8000-004000000011
- 11111111-2222-4000-8000-004000000012
- role-id: provider
  party-uuids:
  - 11111111-2222-4000-8000-004000000001
protocols:
- uuid: 11111111-2222-4000-8000-010000000002
  name: tls
  title: API Service
  port-ranges:
  - start: '443'
    end: '443'
    transport: TCP

```

To represent **Network Services and Ports** within an OSCAL System Security Plan, the data is organized under the `system-implementation` section, specifically categorized by components where the `type` is defined as `service`, `hardware` or `software`.

The mapping for each service entry includes the following technical details:

- **Service Identity:** Each entry starts with a `title` that identifies the specific service or application name (e.g., "HTTPS" or "SSH").
- **Protocol Configuration:** The specific network `protocol` name (such as TCP or UDP) is identified to define how the service communicates.
- **Port Management:** Detailed port information is captured within a `port-range`, specifying the exact `start` and `end` values. This also includes the `transport` layer designation to ensure the specific communication path is fully defined.
- **Functional Justification:** A dedicated `purpose` field provides the business or technical rationale for why the service is required within the system boundary.
- **Component Relationships:** The model tracks which internal system elements are utilizing the service by linking to the `title` of other defined components via their unique identifiers (UUIDs).

For systems with multiple services, each is documented as an individual service component, with the ability to define multiple protocols and port ranges within each entry to maintain a complete and granular inventory.

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