

# Managing Devices With SNMP

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# Overview



**In depth discussion of the protocol**

## **Object Identifier**

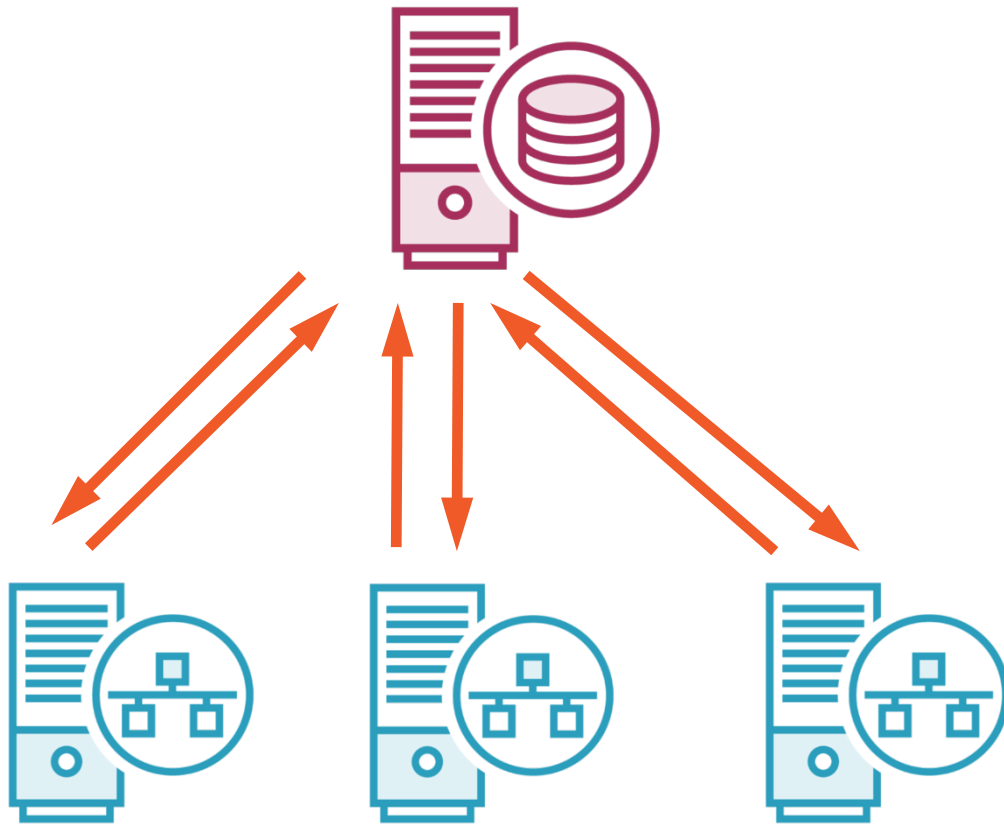
- Format
- Data

## **Management Information Base**

- Format



# SNMP Polling

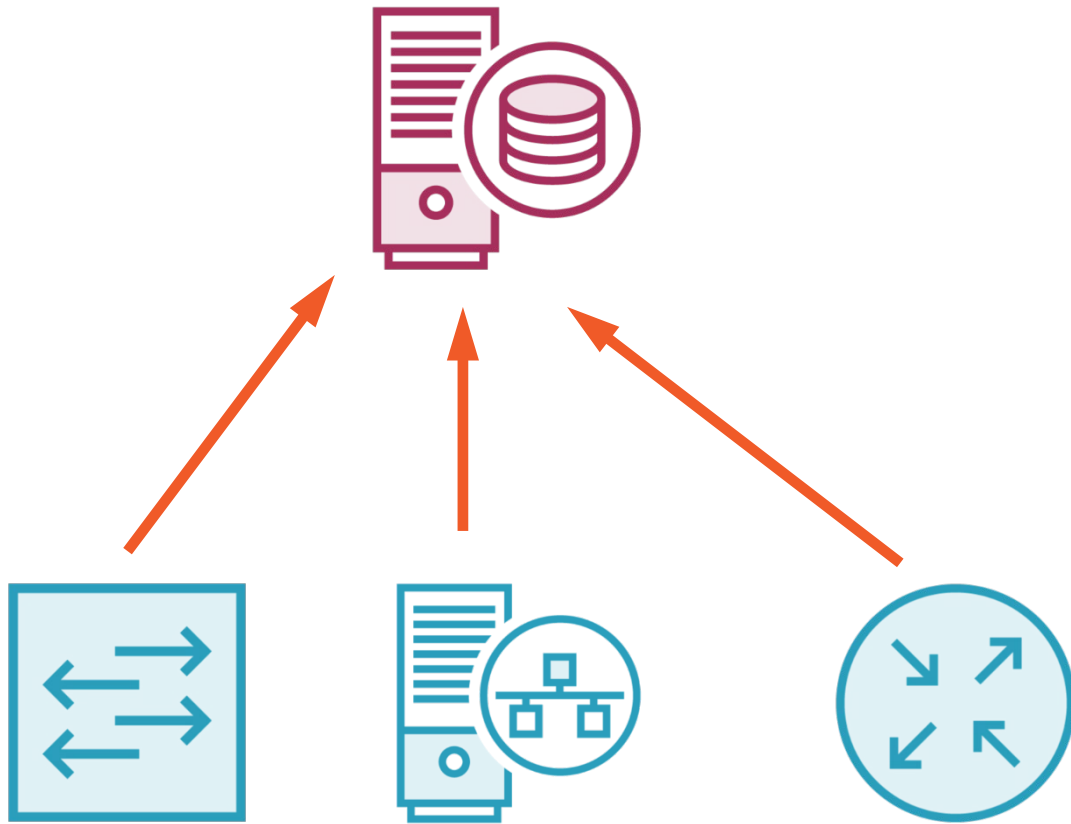


Uses UDP (connectionless)  
Source port: any (usually random)  
Destination port: 161

When used with TLS or DTLS:  
destination port 10161



# SNMP Notifications



Uses UDP (connectionless)

Source port: 162

Destination port: any (usually random)

When used with TLS or DTLS: source port 10162

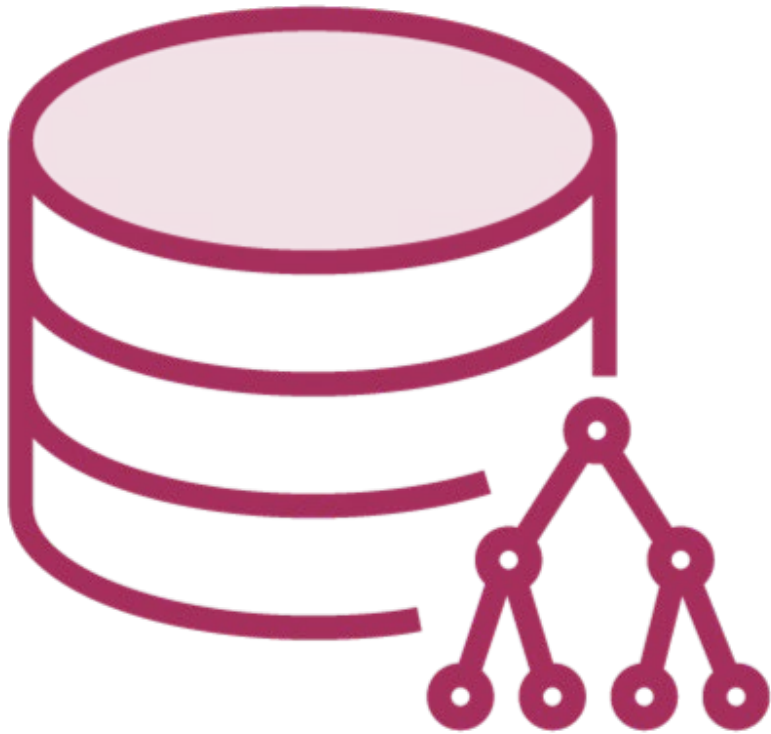


# Object Identifier (OID)

An object identifier (OID) is an extensively used identification mechanism jointly developed by ITU-T and ISO/IEC for naming any type of object, concept or "thing" with a globally unambiguous name which requires a persistent name.



# Object Identifiers



**Uses the ITU X.660 standard**

- “OID standard”

**Define a logical entity for SNMP data**

**Has a “tree” structure**

- 0: ITU-T
- 1: ISO
- 2: joint-iso-itu-t

1

1.3

1.3.6

1.3.6.1

1.3.6.1.4

1.3.6.1.4.1

1.3.6.1.4.1.9

1.3.6.1.4.1.9.9

1.3.6.1.4.1.9.9.13

...etc

- ◀ ISO.Identified-Organization.  
DOD.Internet.Private.Enterprise.  
Cisco Systems.ciscoMgmt.  
ciscoEnvMonMIB
- ◀ How can you remember this?



ciscoEnvMonTemperatureStatusValue OBJECT-TYPE

SYNTAX Gauge32

UNITS "degrees Celsius"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The current measurement of the testpoint being instrumented."

::= { ciscoEnvMonTemperatureStatusEntry 3 }

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## MIB Format

**Plain text**

**Formatted in ASN.1 notation**

**Each entry builds on the previous ones**





# MIBs

**Compiled into the NMS**

**Not expected to remember all the OIDs**

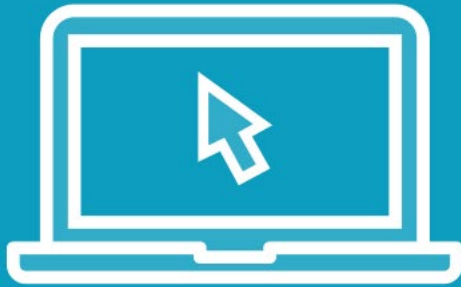
- Highly specialized devices may require additional setup

**Most “standard” MIBs included**

- ISO
- Large Manufacturers



Demo



**Examine devices with SNMP**

- SNMP Walker

