

(Design and Implementation of
a Generalized Management Information Repository Service
for Network and System Management)

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DPE Lab.

1997 12 16



GMIRS

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GMIRS prototype



 IETF SNMP, DMTF DMI, OSI CMIP

 WBEM - HMMP, CIM

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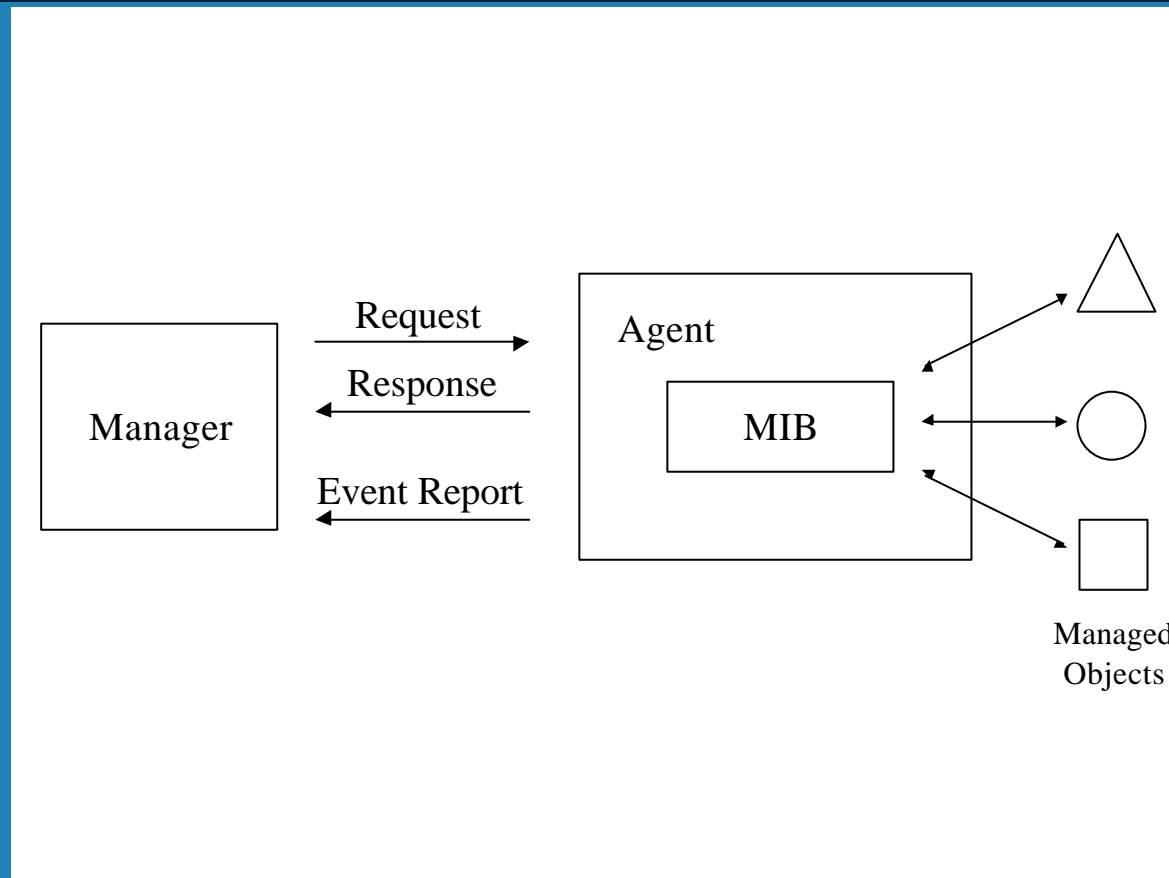
CIM

(GMIRS)

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General Management Paradigm



Simple Network Management Protocol

✍ IETF

✍ SNMPv1, SNMPv2, SNMPv3

✍ MIB

✍ SMI = subset of ASN.1 + specific to SNMP

✍ OID

✍ GET, GETNEXT, SET, TRAP
+ GETBULK, INFORM

Structures of Management Information

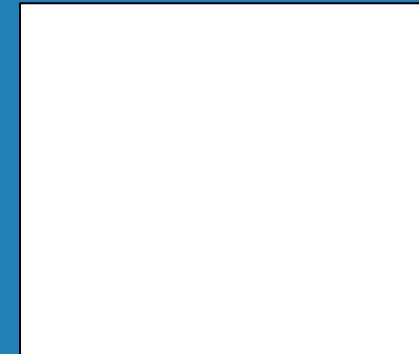


- INTEGER, Gauge, Counter, TimeTicks, OCTET STRING, OBJECT IDENTIFIER, IpAddress, NetworkAddress, Opaque

textual convention



- OBJECT-TYPE, OBJECT-IDENTITY, SEQUENCE, TRAP-TYPE



SNMPv1 MIB

Desktop Management Interface

✍ DMTF

✍ DMI 2.0

✍ MIF

✍ Service Provider, MI, CI

✍ RPC

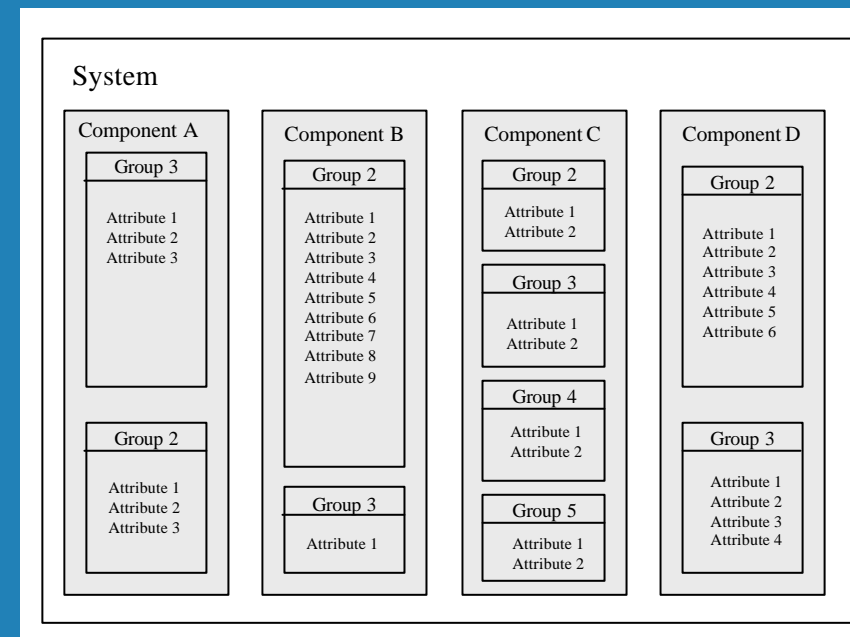
✍ LIST : 가

Management Information Format

✍ component, group,
attribute - id

✍ table - id, key

- ✍
- integer, integer64, gauge, counter, counter64, string, displaystring, octetstring, date



DMI

Common Information Model

 DMTF

 CIM 1.1



. WBEM

 MOF

Managed Object Fortmat



- class, association, property, reference, method, instance, qualifier

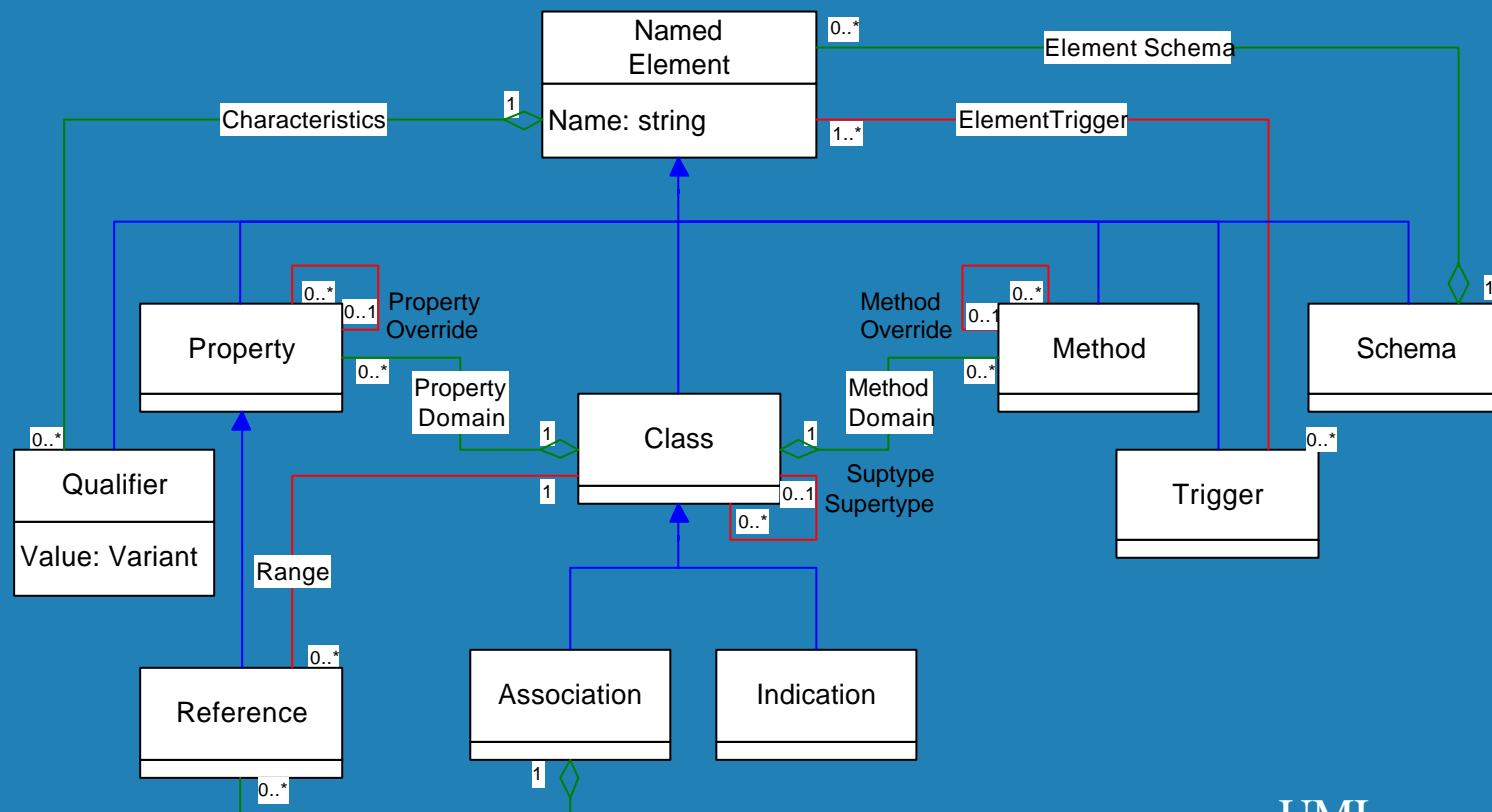


namespace



- uint8, sint8, uint16, sint16, uint32, sint32, uint64, sint64, string. Boolean, real32, real64, datetime, <classname> ref, char16

CIM Meta Schema Structure



UML

가

✍ Technique Mapping

- SMI, MIF, GDMO
CIM

✍ Recast Mapping

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✍ Domain Mapping

- 가 , CIM core
common model, extension sub - schemas
- content -to -content mapping

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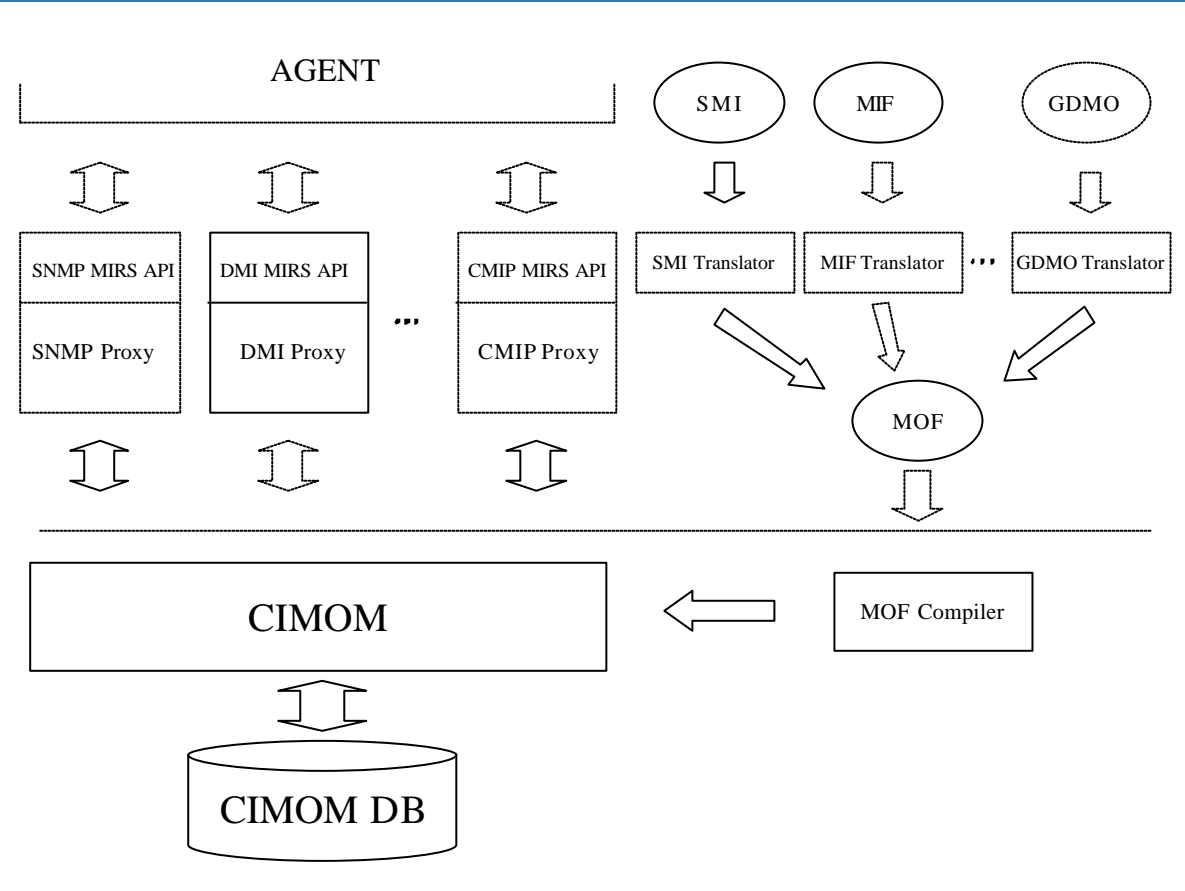
- CIM, MOF



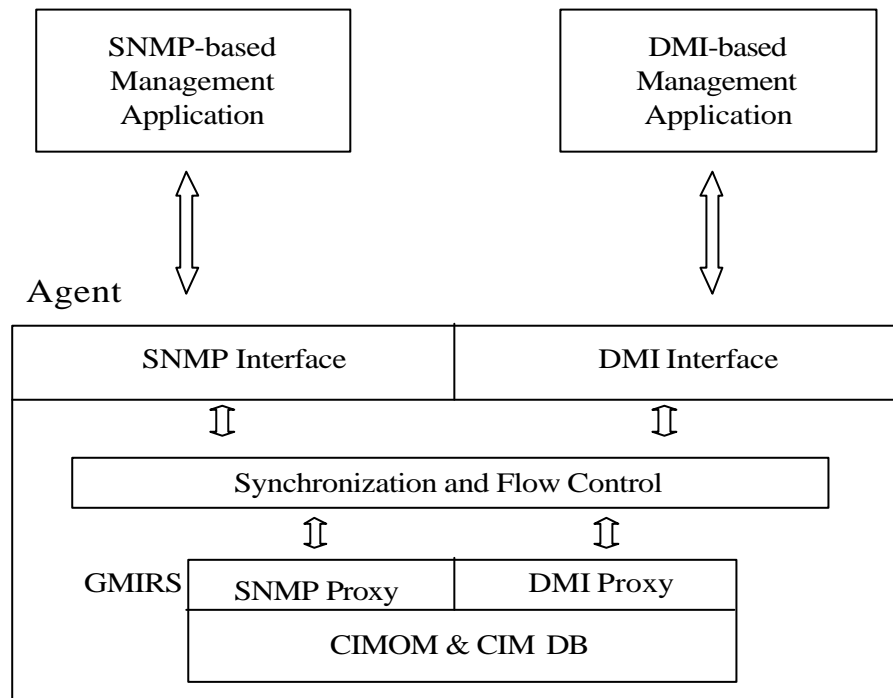
SNMPv1

DMI 2.0

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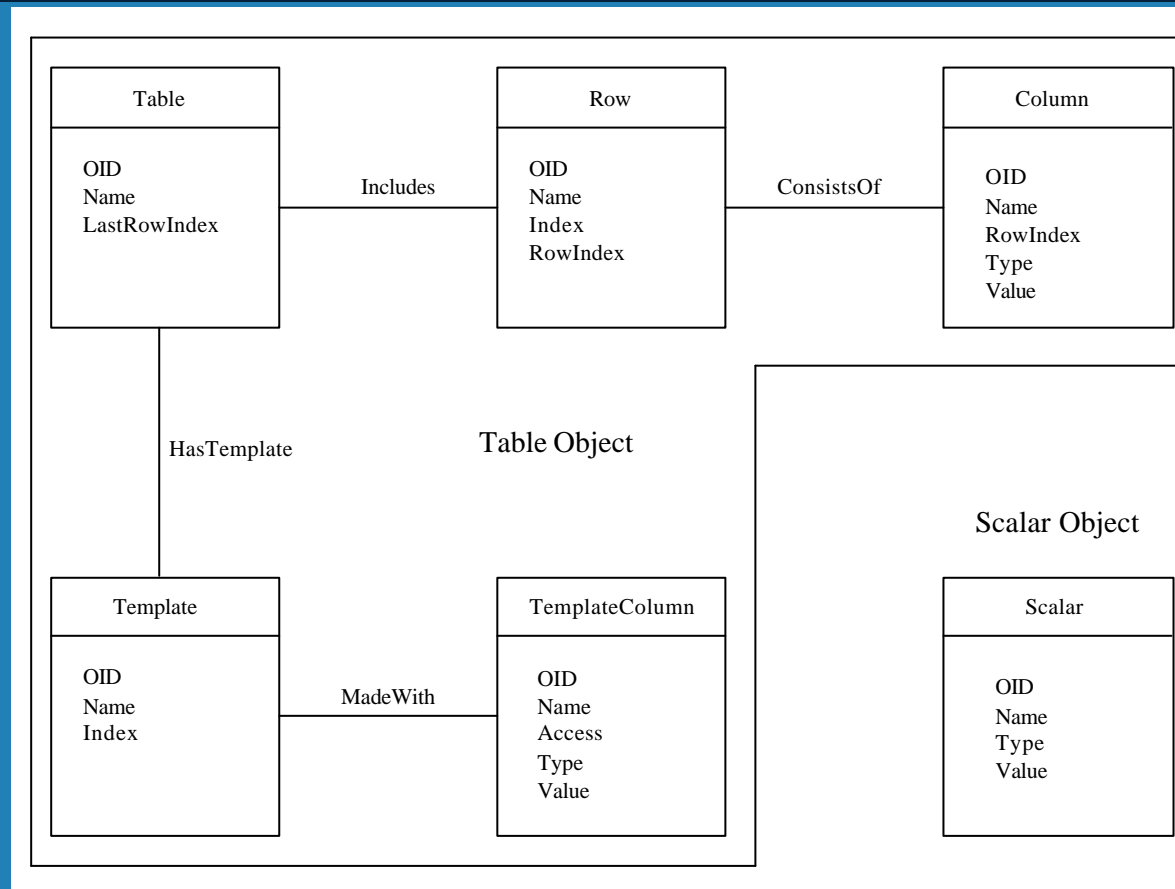
SNMP SMI Translator



OBJEC-TYPE



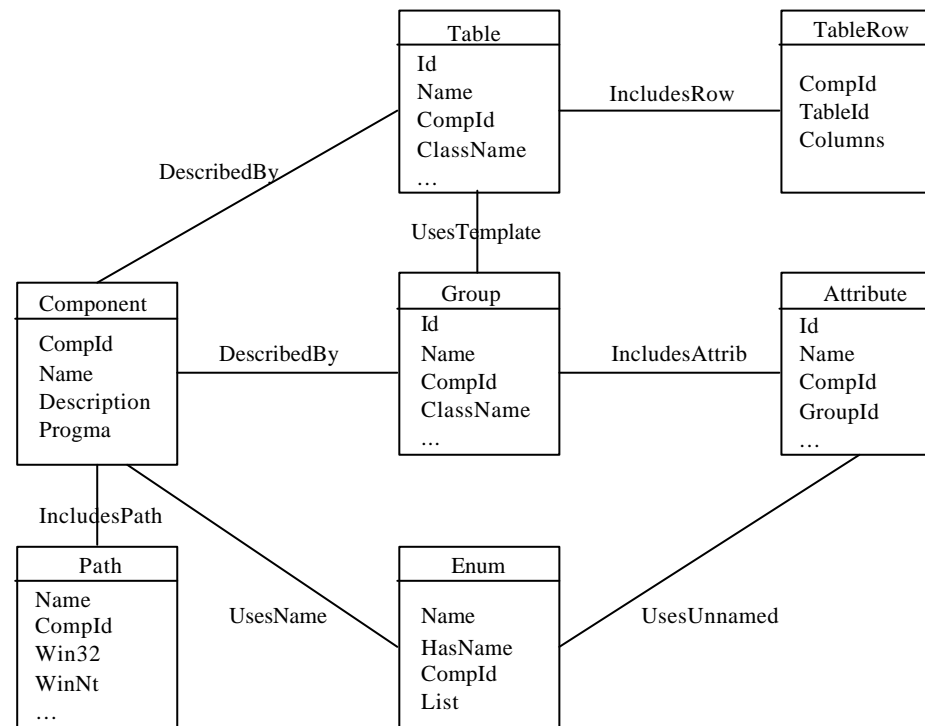
SMI Technique Mapping



DMI MIF Translator

- ✍ component, group, attribute
- ✍ table, template, enum, path
- ✍ component Id

MIF Technique Mapping



SNMP MIRS API

SNMP Proxy Agent

- SnmpGet (SnmpOid_t *oid,
 SnmpValue_t **value)
- SnmpGetNext (SnmpOid_t *oid,
 SnmpValue_t **value)
- SnmpSet (SnmpOid_t *oid,
 SnmpSetValue_t *value)

DMI MIRS API

- ✍ DMI Proxy Agent
- ✍ DMI MI Listing Functions
Operation Functions, Database
Administration Functions delete
- ✍ Dmi DmiProxy
- ✍ , handle

DMI MIRS API ()

Listing Functions

- DmiProxyListComponents()
- DmiProxyListComponentsByClass()
- DmiProxyListLanguages()
- DmiProxyListClassNames()
- DmiProxyListGroups()
- DmiProxyListAttributes()

Operation Functions

- DmiProxyGetAttribute()
- DmiProxySetAttribute()
- DmiProxyGetMultiple()
- DmiProxySetMultiple()
- DmiProxyAddRow()
- DmiProxyDeleteRow()

Database Administration Functions

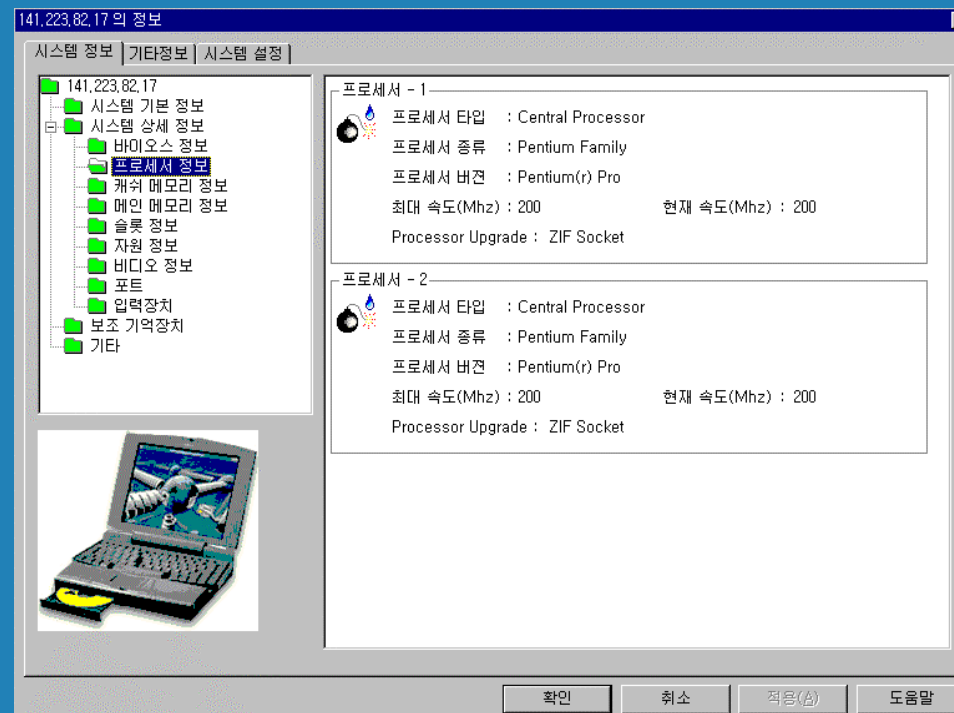
- DmiProxyDeleteComponent()

GMIRS prototype

- ✍ : C, C++
- ✍ : Visual C++ 5.0
- ✍ : Windows 95, Windows NT
- ✍ Microsoft WBEM SDK Beta 2
- ✍ WQL = subset of SQL + CIM specific

MagicMan

MagicMan - DMI PC





GMIRS

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CIM

, SNMPv1

DMI 2.0



Translator, Proxy, CIMOM



SNMPv2, SNMPv3, CMIP