

---

# WS-Man/CIM Profile Registration

Rick Landau  
Stds & Sys Mgt, CTO Office  
v00 20100908

---



# Goals

- How do I find all the interesting CIM class instances?
  - Where do I start?
  - What associations do I navigate?
- Do it the way customers do, without Dell-specific shortcuts



# Profile Registration Profile (the other PRP)

- DSP1033 v1.0.0, available at [www.dmtf.org](http://www.dmtf.org)
  - Pretty straightforward
  - Dell implements all mandatory features, uses a subset of options available
- How does a client program find out what instrumentation conforms to what profile?



# Special "interop" Namespace

- PRP permits four different names, implementations choose exactly one
  - › Or, if the entire implementation uses only one namespace, then it does not need any specific name, answers to all names (edge case: Intel)
- On Dell OOB systems, the namespace name is "root/interop"
- Customer algorithm: try enumerating CIM\_RegisteredProfile in each possible namespace in turn until you find some instances
  - Remember that one



# Reminder About Class Name Collisions

- Within a single namespace, only one provider can instantiate a given classname
  - Have two providers? Must use two different classnames
  - Create a child class by trivial derivation from the parent class, e.g., DCIM\_RegisteredProfile derived from CIM\_RegisteredProfile
- Always enumerate the parent CIM\_xxx class
  - Polymorphic retrieval with WS-Man Enumerate operation will find instances of the child class(es)



# CIM\_RegisteredProfile

- Contains, among other properties,
  - RegisteredOrganization (and OtherRegisteredOrganization)
  - RegisteredName
  - RegisteredVersion
- Dell uses derived class with different name, DCIM\_RegisteredProfile

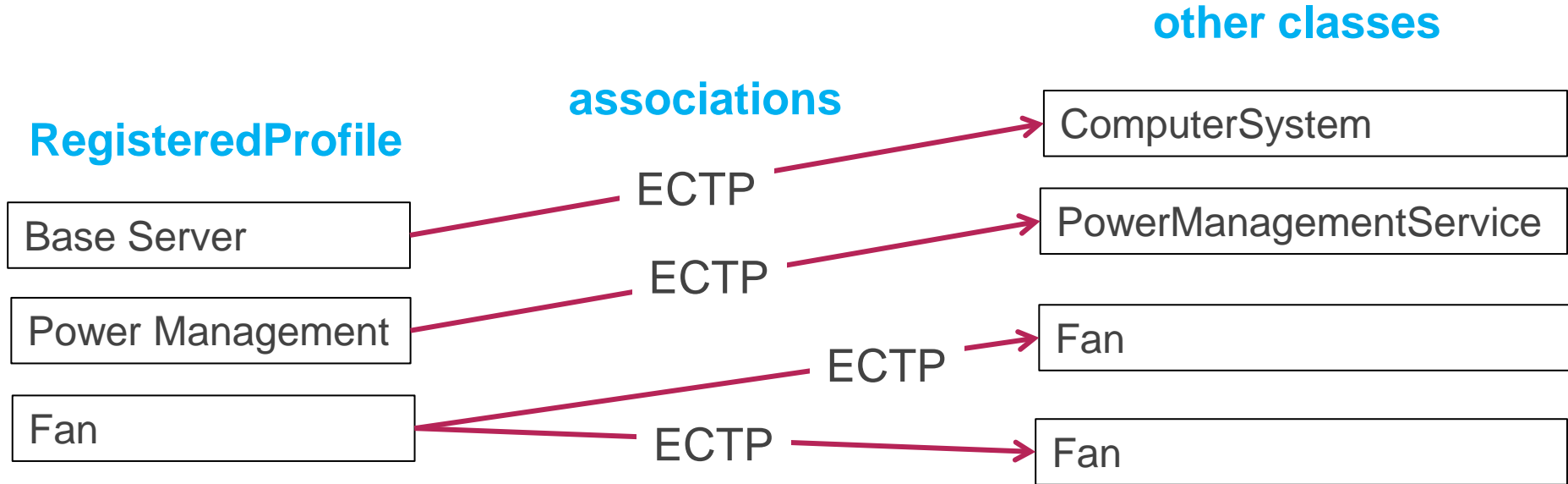


# CIM\_ElementConformsToProfile (ECTP)

- Association class
- Connects a profile with some other element, usually a device
- Dell uses a derived class with a different name
  - To avoid name collisions within the interop namespace
  - DCIM\_ElementConformsToProfile or
  - DCIM\_LCElementConformsToProfile



# Profiles in interop Namespace



(There may be other associations, too)

(These may be in other namespaces)





# Questions About Conformance

- How do I find all the devices that conform to this profile?
- Does an instance of, e.g., fan conform to a profile?
- Two different ways specified in the PRP
  - Dell uses only one



# Central Class Advertisement

- Conformance (of an instance to a profile) is explicitly stated with an association instance, "ElementConformsToProfile"
  - Means exactly what it says
- (Look at the picture, section 6.2, figure 2)
- Dell implements central class in all server instrumentation

# Scoping Class

- Conformance is implied by the ReferencedProfile association
- (Look at the diagram, section 6.3, figure 3)
- Dell does not use this method (except maybe in the OEM instrumentation on some client systems)

# Implementation Namespace

- Instances of devices (sensors, fans, power supplies, etc.) are always instantiated in a Dell-specific implementation namespace
  - On iDRACs, root/dcim
  - On CMC, root/dell/cmc
- But it doesn't matter anyway if you navigate the ECTP association from the profile in interop
  - Using the correct algorithm, this detail is hidden in the associations



# Subtle Points

- Namespaces
  - Just like any other instance of a class, an association instance exists in a CIM namespace
  - The instances that it points to may also be in any CIM namespace
- An association is navigable in both directions
  - Start in the namespace of the source instance (profile or device)
  - If the two instances are in separate namespaces, need one copy of the association in each namespace
  - This is very common in Dell implementations

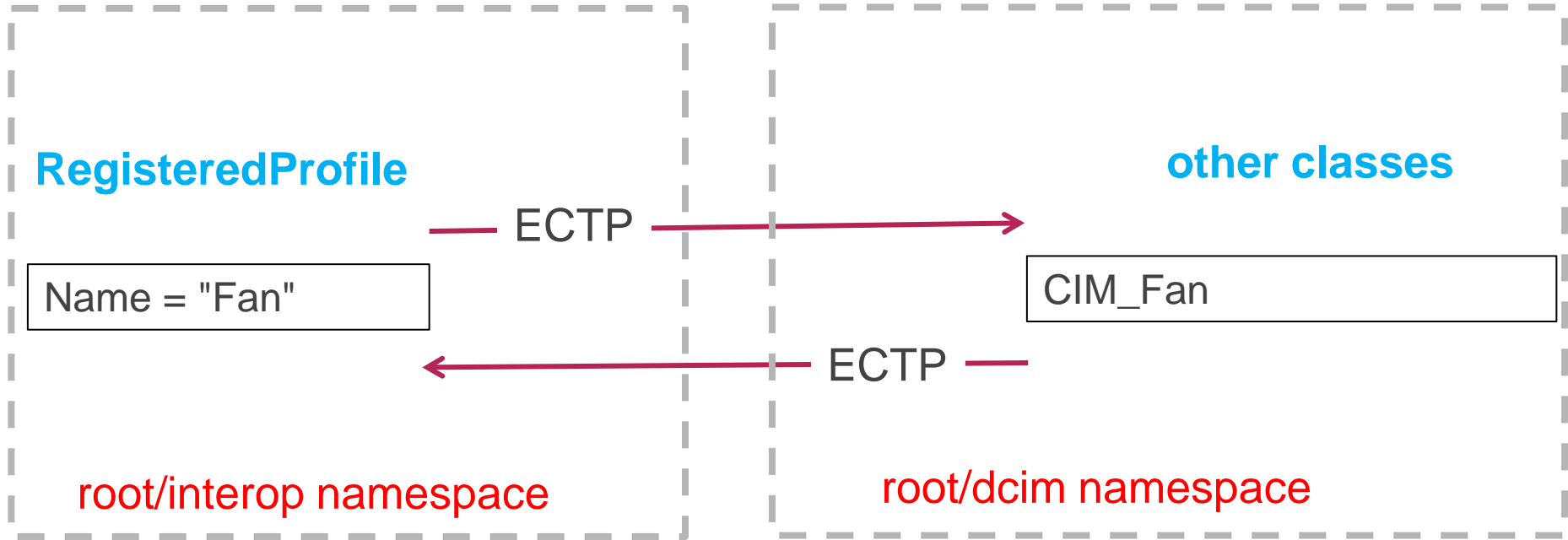


# Cross-Namespace Associations

- If an association relates two instances that are in different namespaces, then the PRP says *it must be instantiated in both namespaces*
- Reason: so that the association can be navigated in both directions, from profile to device or vice versa
- All ECTPs go from interop to the implementation namespace, therefore must be instantiated in both namespaces



# Two Copies of Association



# Typical Overall Processing

- Find the interop namespace
- Find the central ComputerSystem
- Find the desired profile (Fan, Power, etc.)
- Find the devices that conform to the profile
- Do whatever processing is needed (discovery, monitoring, configuration, whatever)





# Typical Navigation

- Find the interop namespace (described before)
- Enumerate CIM\_RegisteredProfile in root/interop
- For the desired profile, get associators using the CIM\_ElementConformsToProfile association
  - These are the instances that match the profile: the base server, sensors, batteries, fans, power management services, whatever
  - Almost always crosses to another namespace



# Find the ComputerSystem

- Enumerate CIM\_RegisteredProfile in root/interop
- Find the RegisteredProfile with Name = "Base Server"
- Navigate ECTP from the profile to the instance of ComputerSystem



# Find the ComputerSystem

- Enumerate CIM\_RegisteredProfile in root/interop
- Find the RegisteredProfile with Name = "Base Server"
- Navigate ECTP from the profile to the instance of ComputerSystem



# Find the Devices

- Enumerate CIM\_RegisteredProfile in root/interop
- Find the RegisteredProfile with Name = "Fan" (or whatever)
- Navigate ECTP from the profile to the instances of CIM\_Fan (or whatever)





# More Later

- Working on list
- Open to all suggestions: SEND EMAIL

