CA Service Desk Manager

CA CMDB Technical Reference Guide

r12.5

CA Product References

This documentation set references the following CA products:

- CA Advantage™ Data Transformer (ADT)
- CA Asset Portfolio Management (CA APM)
- CA CMDB
- CA Business Intelligence
- CA Cohesion® Application Configuration Manager (CA Cohesion ACM)
- CA Embedded Entitlements Manager (CA EEM)
- CA Enterprise Workload Automation (CA EWA)
- CA IT Process Automation Manager (CA IT PAM)
- CA Management Database (CA MDB)
- CA Management Portal
- CA Network and Systems Management (CA NSM)
- CA Portal
- CA Remote Control Manager (CA RCM)
- CA Service Desk Manager (CA SDM)
- CA Service Management
- CA Siteminder
- CA Software Delivery
- CA Spectrum® Infrastructure Manager (CA Spectrum)
- CA Wily
- CA Workflow
- Unicenter Asset Portfolio Management (UAPM)

Contact CA

Contact Technical Support

For your convenience, CA provides one site where you can access the information you need for your Home Office, Small Business, and Enterprise CA products. At http://ca.com/support, you can access the following:

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

Provide Feedback

If you have comments or questions about CA product documentation, you can send a message to techpubs@ca.com.

If you would like to provide feedback about CA product documentation, complete our short customer survey, which is also available on the CA Support website, found at http://ca.com/docs.

Contents

Chapter 1: Introduction

This section contains the following topics:

Audience

This guide is intended for implementers who perform the following configuration management database (CMDB) tasks:

- Map your data into the CA CMDB.
- Manage CA CMDB configuration items.
- Use the Advantage Data Transformer (ADT) to write a Federation Adapter.
- Use the CMDBf Web Services to interact with CA CMDB.

The information in this guide can assist you as you plan your CA CMDB implementation. You can print sections of the guide and have the printouts handy while performing these tasks.

CI Families and Classes

Configuration item (CI) *families* categorize your business assets by type and assign meaningful attributes for each CI in the family. Families are general categories of CIs, such as hardware, software, and services CIs.

CI *classes* are specific categories within the family categories. For example, the Hardware family contains CI classes such as modem, router, repeater, and bridge.

You can organize your CIs into families and classes to make them easier to manage. For example, you can generate a list of CIs that belong to a particular family or class.

You use the following sequence to categorize your business assets:

1. Define CI families.
2. Define CI classes.
3. Define CIs.

List Configuration Item Families

You can list CA CMDB CI families and view their descriptions.

To list configuration item families

1. Log into CA Service Desk Manager as an administrator.

   The web interface appears.

2. Click Administration.

   The Administration tree appears.

3. Navigate the folder structure by clicking CA CMDB, CI Families.

   The CI families and their descriptions are listed.

4. (Optional) Click a CI family name.

   CI family details appear.

Generate a Configuration Item Families Summary

You can list CA CMDB CI families and view their descriptions in a report format.

To list configuration item families

1. Log into CA Service Desk Manager as an administrator.

   The web interface appears.

2. Click Administration.

   The Administration tree appears.

3. Navigate the folder structure by clicking CA Service Desk Manager, CI Families.

   The CI families and their descriptions are listed.

4. Click Reports, Summary.

   A summary report appears in a separate window.

5. (Optional) Click Print to select a printer and print the report.

   The report prints.

MDB Extension Tables

Each CI family has a set of family-specific attributes that reside in an *extension table* in the MDB. The family-specific attributes describe the unique characteristics of each type of CI. For example, a CI in the Hardware.Server family has attributes that represent the following:

- swap_size—The size of the disk space allocated on a hardware or network device to store the state of a process that has been swapped out.
- mem_capacity—The total amount of memory that can be installed and made available.
- slot_total_mem—The total amount of memory available on memory cards in a hardware or network device.

When you implement CA Service Desk Manager, you can determine the types of CIs that you want to manage and the attributes that you can track for them.

Common Attributes

The following attributes are common to various families.

Object Name	Description
acquire_date	Date the resource was acquired.
alarm_id	IP address. (hardware only)
asset_count	Resource quantity.
asset_num	Alternate resource identifier, for example, an alternate ID located on sticker placed on a computer.
class	In the object, this is the name of the class. In the table, this is a foreign key to a record in the ca_resource_class table (SREL integer to grc).
company_bought_for_uuid	In the object, this is the name of the company for which the CI was bought. In the table, this is a foreign key to the ca_company table (SREL uuid to ca_cmpny).
contact_1	In the object, this is a user-defined contact field. In the table, this is a foreign key to the ca_contact table (SREL uuid to cnt).
contact_2	In the object, this is a user-defined contact field. In the table, this is a foreign key to the ca_contact

Object Name	Description
	table (SREL uuid to cnt).
contact_3	In the object, this is a user-defined contact field. In the table, this is a foreign key to the ca_contact table (SREL uuid to cnt).
creation_date	Timestamp (pdmtime) indicating the date and time that the CI was created.
creation_user	User ID of the contact who created the CI
delete_flag	Active|FALSE|0 (zero)|No: CI is active and displays in display lists (the default). Inactive|TRUE|1 (one)|Yes: CI is not active and does not appear in display lists.
department	In the object, this is the name of the department. In the table, this is a foreign key to the ca_resource_department table (SREL integer to dept).
description	Longer name or description of the resource.
dns_name	The name by which this device is know in the domain name server.
exclude_registration	Exclude Registration.
expense_code	In the object, this is the CI cost center. In the table, this is a foreign key to the ca_resource_cost_center table (SREL integer to cost_cntr).
expiration_date	Date the license, lease, and so on, expires.
family	In the object, this is the name of the family. In the table, this is a foreign key to a record in the ca_resource_family table (SREL integer to nrf). Used to extend at a high level, for example, hardware.server, network.router, software.database.
financial_num	Financial number.
install_date	Date resource was installed in organization or network.
is_asset	Boolean flag that can be set to categorize an Asset for filtering purposes and to control display in CA CMDB or other products such as CA Asset Portfolio Management. CA CMDB does not allow the Asset flag to be changed to NO when an asset is

Object Name	Description
	managed by CA Asset Portfolio Management.
is_ci	Boolean flag that can be set to categorize a CI for filtering purposes and to control display in CA CMDB or other products such as CA Asset Portfolio Management. By default, a CI created by CA CMDB is flagged as a CI but not as an Asset.
last_mod_by	User ID of the contact who last modified the CI
license_number	License Information.
loc_cabinet	Cabinet location.
loc_floor	Floor location.
loc_room	Room location.
loc_shelf	Shelf location.
loc_slot	Slot location.
location	In the object, this is the name of the location. In the table, this is a foreign key to a record in the location table (SREL uuid to loc).
mac_address	MAC address. (hardware only)
manufacturer	In the object, this is the name of the company who manufactured the CI. In the table, this is a foreign key to a record in the ca_company table (SREL uuid to ca_cmpny).
model	In the object, this is the model name for the CI. In the table, this is a foreign key to the ca_model_def table (SREL uuid to mfrmod).
name	The name of the resource.
name_type	Foreign key to the ca_asset_type table to represent Hardware, Software, and so on.
org_bought_for_uuid	In the object, this is the name of the organization for which the CI was bought. In the table, this is a foreign key to the ca_organization table (SREL uuid to org).
priority	Enumerated value for this entry, it specifies ordering in lists and relative values (SREL integer to pri).
product_version	Product release.
repair_org	In the object, this is the name of the organization

Object Name	Description
	responsible for maintenance of the CI. In the table, this is a foreign key to the ca_organization table (SREL uuid to org).
resource_alias	Resource alias.
resource_contact	In the object, this is the name of the contact responsible for the CI. In the table, this is a foreign key to the ca contact table (SREL uuid to cnt).
resource_owner_uuid	In the object, this is the name of the owner for the CI. In the table, this is a foreign key to the ca_contact table (SREL uuid to cnt).
serial_number	Serial number.
service_org	In the object, this is the name of the organization ultimately responsible for the resource. In the table, this is a foreign key to the ca_organization table (SREL uuid to org).
service_type	Noneditable enum (SREL string to no_contract_sdsc).
sla	The SLA value for this usp_owned_resource.
smag_1	User-defined string field.
smag_2	User-defined string field.
smag_3	User-defined string field.
smag_4	User-defined string field.
smag_5	User-defined string field.
smag_6	User-defined string field.
standard_ci	Standard configuration for comparison.
status	In the object, this is the status indicator for the CI. In the table, this is a foreign key to the ca_resource_status table (SREL integer to rss).
supplier	In the object, this is the name of the vendor responsible for supplying the CI. In the table, this is a foreign key to the ca_company table (SREL uuid to ca_cmpny).
system_name	Computer name. (hardware only)

Object Name	Description
tenant	Tenant assignment for the CI
vendor_repair	In the object, this is the name of the vendor providing maintenance for the CI. In the table, this is a foreign key to the ca_company table (SREL uuid to ca_cmpny).
vendor_restore	In the object, this is the name of the company ultimately responsible for the resource. In the table, this is a foreign key to the ca_company table (SREL uuid to ca_cmpny).
warranty_end	Warranty end date.
warranty_start	Warranty start date.

Relationship Types

Relationships are *directional* connections between CIs.

Provider/Dependent	Dependent/Provider	Relationship Description
administers	is administered by	A responsible entity, usually a person, performs day-to-day administration of other entities.
approves	is approved by	A responsible entity grants approval for another entity to proceed with a planned or desired activity.
authorizes	is authorized by	A responsible entity ratifies activities of other entities.
authors	is authored by	A responsible person writes/creates document CIs.
backs up	is backed up by	For data recovery and preservation, one entity's critical information is stored upon another entity.
communicates with	communicates with	A peer-to-peer relationship where two entities which have a logical or physical connection convey data or information back and forth.
complies to	is complied to by	One entity abides by regulations

Provider/Dependent	Dependent/Provider	Relationship Description
		(COBIT, SOX, and so on) set forth by another entity.
connects to	connects to	A peer-to-peer relationship where two entities have a logical or physical connection.
contains	is contained by	If one entity physically or logically houses another entity, then it contains that entity. The contained entity provides a service to the container.
controls	is controlled by	One entity, typically an SLA, specifies the levels of service that another entity is expected to provide.
defines	is defined by	If one entity describes another's actual or desired state, then it defines the other.
deploys	is deployed by	A responsible entity assembles and distributes other entities.
documents	is documented by	One entity, usually a document, describes the operation or other aspects of another entity. The 'documents' relationship is primarily descriptive instead of normative.
fails over	fails over	A peer-to-peer relationship between two entities where one entity can replace the other, usually in response to a disastrous interruption in service.
fronts	is fronted by	An entity is responsible for accepting and responding to requests for another physical entity. For example, a web server fronts an application.
governs	is governed by	A governing body (NIST, SOX PCAOB, SEC) typically issues regulations and rulings to which a governed entity, usually a service, must comply.
has an assignee	is assigned to	An entity, usually a person, has been designated responsible for

Provider/Dependent	Dependent/Provider	Relationship Description
		another entity.
hosts	is hosted by	One entity hosts another entity which is continuous. The hosted entity uses services provided by the host entity.
is business owner of	is owned by	An entity, usually a person, has been designated as the responsible business contact for another entity.
is gateway for	has for gateway	An entity, a hardware (computer) or network component, allows or controls access to another management device.
is high availability server for	has for high availability server	Uses clustering and database mirroring to provide very rapid recovery from system failures.
is location for	located at	An entity, in this case a physical location, has been designated as the place where another entity resides.
is primary contact for	has primary contact of	
is proxy for	is proxied by	An entity serves as a substitute pathway for connection to a network or remote storage device. For example, this gateway is a proxy for the clients on this LAN.
is recovery server of	has for recovery server	A service or application and a server that is configured to restore the specific service or application. Generally, recovery servers are an alternative to a cluster and are used when slower recovery is acceptable.
is required by	requires	An entity that cannot function properly without another entity.
is server of	is client of	A server-client relationship where the server responds to requests from the client. Alternative for "serves - is served by" relationship.

Provider/Dependent	Dependent/Provider	Relationship Description
is source code for	source code is from	An entity, application code or an application library, provides the instructions that are executable in another entity.
is subscribed to by	subscribes to	An entity, either a group of users or a single user, "signs up" to have access to or use of another entity.
is the parent of	is the child of	One entity is the parent of another entity if the other entity cannot exist without the parent entity.
is used by	uses	
manages	is managed by	
monitors	is monitored by	One entity monitors another entity if it tracks aspects of the other entity.
notifies	is notified by	An entity advises another entity that pertinent information of specific interest is now available.
provides to	is provided by	An entity is responsible for making another entity, usually a service, available to customers. For example, user, organization, or other entity provides a service.
regulates	is regulated by	One entity periodically adjusts some parameter of another entity. A time server which periodically regulates the time on other devices is an example.
runs	runs on	One entity runs another transient entity.
secures	is secured by	An entity guards another entity against risks.
serves	is served by	Alternative for "is server of - is client of" relationship.
services	is serviced by	An entity, typically a maintenance organization or vendor, is responsible for responding to service calls for a

Provider/Dependent	Dependent/Provider	Relationship Description
		physical entity.
supports	is supported by	An entity, usually an organization, is responsible for responding to incidents that emanate from another entity, usually a service.
updates	is updated by	An entity brings another entity's data up-to-date.
uses	is used by	An entity consumes data or services from another entity.

List Relationship Types

You can list CA CMDB relationship types to see the *directional* connections between CIs.

To list relationship types

1. Log into CA Service Desk Manager as an administrator.

   The web interface appears.

2. Click Administration.

   The Administration tree appears.

3. Navigate the folder structure by clicking CA CMDB, CI Relationship Types.

   The relationship types are listed in columns: Provider To Dependent, Dependent to Provider, and Peer-to-Peer.

4. (Optional) Click a relationship type.

   Relationship type details appear in a separate window, and you can edit the relationship type.

Chapter 2: Families and Classes

This section contains the following topics:

Base Families

The following CA Service Desk Manager and CA APM base families do not have their own CA CMDB extension tables:

- Computer
- Hardware
- Other
- Projects (includes a CA Service Desk extension table)
- Software

In CA CMDB, CIs in these base families receive CA CMDB CI Detail pages with some extraneous fields and lacking an Attributes tab. You can use the Change Family and Class capability to convert these CIs to CA CMDB families to take advantage of CA CMDB advanced features such as the ability to track family-specific attributes, versioning, snapshots, and baselines.

Cluster Families

The Cluster families include the following:

Cluster

Identifies multiple servers linked together to handle variable workloads or if one or more devices fail, to provide continued operation.

Cluster.Resource

Identifies a member of a cluster resource group.

Cluster.Resource Group

Identifies a group of devices in a cluster.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Cluster	Cluster	net_clux	ci_network_cluster	Failover Cluster
Cluster.Resource	Resource	net_rsrcx	ci_network_resource	Resource Cluster
Cluster.Resource Group	Resource Group	net_rgrpx	ci_network_resource_group	Resource Group Cluster

Cluster Attributes

The Cluster family includes the following attributes that correspond to the net_clux extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
channel_address	Channel Address	The tag used to identify a channel on a port.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
gateway_id	Gateway ID	The unique identifier for a network point that acts as an entrance (gateway) to another network.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.

Object Name	Label	Description
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_effective_date	Lease Effective Date	The date on which a lease begins.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI (for example, vendor or in-house).
network_address	Network Address	The IP address at which this CI resides (for example, 192.168.0.4)
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
os_version	OS Version	The version number of a CIs operating system.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
quorum	Quorum	The name of the definitive repository for all configuration information relating to a cluster.
retire_date	Retire Date	The date on which a CI is no longer active.

Object Name	Label	Description
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
virtual_ip	Virtual IP Address	The designation of the IP address that is shared among multiple domain names or multiple servers.

Cluster.Resource Attributes

The Cluster.Resource family includes the following attributes that correspond to the net_rsrcx extension table:

Object Name	Label	Description
resource_disk	Resource Disk	The identifier for a shared disk to which access can be requested by a server or cluster node.
resource_file	Resource File	The identifier for a file folder whose subfolders can be shared among cluster resources.
resource_group_type	Resource Group Type	The type of recovery domain for a cluster (for example, data resiliency, application resiliency, or device resiliency).
resource_mount_point	Resource Mount Point	The name of the directory where the device must be mounted.
resource_type	Resource Type	The categorization of a cluster resource (for example, physical disk, print spooler, file share, network name, local quorum, and so on).

Cluster.Resource Group Attributes

The Cluster.Resource Group family include the following attribute that correspond to the net_rgrpx extension table:

Object Name	Label	Description
resource_group_type	Resource Group Type	The type of recovery domain for a cluster (for example, data resiliency, application resiliency, or device resiliency).

Contact Family

The Contact family identifies a person or role that is active in the IT infrastructure.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Contact	Executive	cntx	ci_contact	A company executive
Contact	External Contact	cntx	ci_contact	A person or role from outside
Contact	Managerial	cntx	ci_contact	A manager
Contact	Other Contact	cntx	ci_contact	Miscellaneous person or role
Contact	Technical	cntx	ci_contact	A technician

Contact Attributes

The Contact family includes the following that correspond to the cntx extension table:

base_contact

Specifies the person or group that the CI represents (SREL uuid to cnt). Represents an exclusive relationship where only one CI represents a contact in the Contact family.

Object Name	Label
access_type	Access Type
available	Available
bm_status	Operational Status
contact_num	Contact ID
domain	Data Partition
first_name	First Name
global_queue_id	Global Queue
last_name	Group Name
last_name	Last Name

Object Name	Label
middle_name	Middle Name
position	Job Title
schedule	Work Schedule
service_type	Service Type
status	Configured Status
timezone	Time Zone
type	Contact Type
userid	User ID

Contract Family

The Contract family identifies a legally binding business document signed between two parties.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Contract	License Agreement	conx	ci_contract	License Agreement Contract
Contract	Other Contract	conx	ci_contract	Miscellaneous Contract
Contract	Warranty/Maintenance Contract	conx	ci_contract	Warranty/Maintenance Contract

Contract Attributes

The Contract family includes the following attributes that correspond to the conx extension table:

Object Name	Label	Description
con_comments	Comments	Free-form text to more fully describe the particular CI.
con_num	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or

Object Name	Label	Description
		group of CIs.
con_end_date	End Date	The date on which a contract, warranty, or other legal agreement expires.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
con_ref	Contract Reference	The name or number of another document that is related to a specified contract.
con_renewal_date	Renewal Date	The date on which an existing contract, warranty, or other legal agreement is put into effect for an additional period of time.
con_start_date	Start Date	The date on which a contract, document, service, or SLA becomes active.
con_status	Status	An indication of the status of an Application, Contract, Document, Service, or SLA CI (development, review, active, retired, and so on).
con_type	Type	A description of the kind of Application, Contract, Document, Service, or SLA CI.

Document Family

The Document family identifies printed or electronically stored text which is human-readable.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Document	Admin Guide	docx	ci_document	Administration Guide
Document	Application Test Plan	docx	ci_document	Application Test Plan Document
Document	Business Continuity Plan	docx	ci_document	Business Continuity Plan Document
Document	Other Document	docx	ci_document	Miscellaneous Document
Document	Policies and Standards	docx	ci_document	Policies and Standards Document
Document	Training Class Collateral	docx	ci_document	Training Class Collateral Document

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Document	User Guide	docx	ci_document	User Guide Document

Document Attributes

The Document family includes the following attributes that correspond to the docx extension table:

Object Name	Label	Description
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
doc_category	Category	The high-level type designation for an application, service, SLA, or document.
doc_end_date	End Date	The date on which a document expires or is no longer valid.
doc_id	Document ID	The name or number that identifies a particular document.
doc_start_date	Start Date	The date on which a contract, document, service, or SLA becomes active.
doc_status	Status	An indication of the status of an Application, Contract, Document, Service, or SLA CI (development, review, active, retired, and so on).
doc_type	Type	A description of the kind of Application, Contract, Document, Service, or SLA CI.
doc_version	Version	A number or other identifier that indicates the current level (version) of an Application, Document, Service, or SLA CI.
priority	Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.

Enterprise Families

The Enterprise families include the following:

Enterprise.Service

Identifies a combination of people, processes, and information technology that directly or indirectly supports enterprise business processes.

Enterprise.Transaction

Identifies a single transaction in a transactional application.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name
Enterprise.Service	Business Service	entsrvx	ci_enterprise_service
Enterprise.Service	Infrastructure Service	entsrvx	ci_enterprise_service
Enterprise.Service	Other Service	entsrvx	ci_enterprise_service
Enterprise.Transaction	Business Transactions	enttx	ci_enterprise_transaction

Enterprise.Service Attributes

The Enterprise.Service family includes the following classes:

- Business Service
- Infrastructure Service
- Other Service

The Enterprise.Service family includes the following attributes that correspond to the entsrvx extension table:

Note: (R) indicates that the attribute can be stored as a relationship to other CIs.

Object Name	Label	Description
availability_end	Availability End	End of next anticipated service availability period for an intermittent service
availability_start	Availability Start	Start of next anticipated service availability period for an intermittent service
business_contacts (R)	Business Contacts	Business persons to contact with questions about service
business_impact	Business Impact	Magnitude of the effect on business if service is stopped or impaired

Object Name	Label	Description
business_owner (R)	Business Owner	Person or persons who own the service
business_priority	Business Priority	Importance of the service to business
business_risk	Business Risk	Risk to business implied by the service
business_unit (R)	Business Unit	Business unit or units that receive the service
cancel_date	Cancel Date	Date service cancelled or terminated
category	Service Category	Service category
charge_code	Charge Code	Accounting code used to track service expenses
cobit_objective	Cobit Objective	Applicable COBIT control objective
description	Service Description	Service description
design_end_date	Design End Date	End date of design life cycle phase
design_start_date	Design Start Date	Start date of design life cycle phase
escalation_contacts (R)	Escalation Contacts	Persons to contact when escalating service issues
lifecycle_state	Service Lifecycle State	Conforms to ITIL v3. For example: design, transition, production, terminated.
lifecycle_status	Service Lifecycle Status	Status within lifecycle_state: Pending approval, Pending funding
operation_end_date	Operation End Date	End date of operations life cycle phase
operation_start_date	Operation Start Date	Start date of operations life cycle phase
portfolio (R)	Portfolio	Service portfolio holding service
service_alignment	Service Alignment	How well is service aligned to corporate goal? HIGH-MEDIUM-LOW
service_goal	Service Goal	Describe corporate strategy supported by the service
service_hours	Service Hours	Hours when service is normally available
service_manager (R)	Service Manager	Person or persons who manage the service
site (R)	Site	Primary location where service is maintained

Object Name	Label	Description
SLA (R)	SLA	Brief description of applicable SLAs
transition_end_date	Transition End Date	End date of transition life cycle phase
transition_start_date	Transition Start Date	Start date of transition life cycle phase
unavailability_end	Unavailability End	End of next anticipated service blackout for an intermittent service
unavailability_start	Unavailability Start	Start of next anticipated service blackout for an intermittent service
version	Service Version	Current release of the service

Enterprise.Transaction Attributes

The Enterprise.Transaction family includes the following attributes that correspond to the enttx extension table:

Note: (R) indicates that the attribute can be stored as a relationship to other CIs.

Object Name	Label	Description
availability_end	Availability End	End of next anticipated service availability period for an intermittent service
availability_start	Availability Start	Start of next anticipated service availability period for an intermittent service
business_contacts (R)	Business Contacts	Business persons to contact with questions about service
business_impact	Business Impact	Magnitude of the effect on business if service is stopped or impaired
business_owner (R)	Business Owner	Person or persons who own the service
business_priority	Business Priority	Importance of the service to business
business_unit (R)	Business Unit	Business unit or units that receive the service
cancel_date	Cancel Date	Date service cancelled or terminated
category	Transaction Category	Service category
description	Transaction	Service description

Object Name	Label	Description
	Description	
design_end_date	Design End Date	End date of design life cycle phase
design_start_date	Design Start Date	Start date of design life cycle phase
escalation_contacts (R)	Escalation Contacts	Persons to contact when escalating service issues
lifecycle_state	Transaction Lifecycle State	DESIGN-TRANSITION-PRODUCTION-TERMINATED
lifecycle_status	Transaction Lifecycle Status	Status within lifecycle_state: Pending approval, Pending funding
operation_end_date	Operation End Date	End date of operations life cycle phase
operation_start_date	Operation Start Date	Start date of operations life cycle phase
site (R)	Site	Primary location where service is maintained
transaction_alignment	Transaction Alignment	Transaction Alignment
transaction_goal	Transaction Goal	Transaction Goal
transaction_manager	Transaction Manager	Transaction Manager
transition_end_date	Transition End Date	End date of transition life cycle phase
transition_start_date	Transition Start Date	Start date of transition life cycle phase
unavailability_end	Unavailability End	End of next anticipated service blackout for an intermittent service
unavailability_start	Unavailability Start	Start of next anticipated service blackout for an intermittent service
version	Transaction Version	Current release of the service

Facilities Family

The Facilities families include the following:

Facilities.Air Conditioning

Identifies air conditioning, heating, ventilation, humidity control, or general environment management systems.

Facilities.Fire Control

Identifies equipment for fire suppression.

Facilities.Furnishings

Identifies furnishings used to store important IT items.

Facilities.Other

Identifies miscellaneous facilities equipment or supplies.

Facilities.Uninterruptible Power Supply

Identifies uninterruptible power supplies, and other power conditioning and regulation systems.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Facilities.Air Conditioning	Air Conditioning	fac_acx	ci_fac_ac	Air Conditioning Facilities
Facilities.Fire Control	Fire Control	fac_firex	ci_fac_fire_ control	Fire Control
Facilities.Furnishings	Equipment Rack	fac_furx	ci_fac_furnishings	Equipment Rack
Facilities.Furnishings	File Cabinet	fac_furx	ci_fac_furnishings	File Cabinet
Facilities.Other	Other Facilities	fac_othx	ci_fac_other	Miscellaneous Facilities
Facilities.Uninterruptible Power Supply	Uninterruptible Power Supply	fac_upsx	fac_upsx	Uninterruptible Power Supply

Facilities.Air Conditioning Attributes

The Facilities.Air Conditioning family includes the following attributes that correspond to the fac_acx extension table:

Object Name	Label	Description
active_date	Activation Date	The date on which the CI was put into active status.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_end_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_start_date	Lease Effective Date	The date on which a lease begins.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.

Object Name	Label	Description
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.

Facilities.Fire Control Attributes

The Facilities.Fire Control family includes the following attributes that correspond to the fac_firex extension table:

Object Name	Label	Description
active_date	Activation Date	The date on which the CI was put into active status.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_end_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_start_date	Lease Effective Date	The date on which a lease begins.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
ci_priority	CI Priority	The service level designation that is assigned to indicate

Object Name	Label	Description
		the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.

Facilities.Furnishings Attributes

The Facilities.Furnishings family includes the following attributes that correspond to the fac_furx extension table:

Object Name	Label	Description
active_date	Activation Date	The date on which the CI was put into active status.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_end_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_start_date	Lease Effective Date	The date on which a lease begins.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.

Object Name	Label	Description
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
warehouse_loc	Warehouse Location	The physical location of a warehouse or other storage facility where a CI resides after it has been received and is in "in stock" status.

Facilities.Other Attributes

The Facilities.Other family includes the following attributes that correspond to the fac_othx extension table:

Object Name	Label	Description
active_date	Activation Date	The date on which the CI was put into active status.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_end_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
lease_renewal_dat	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the

Object Name	Label	Description
e		vendor.
lease_start_date	Lease Effective Date	The date on which a lease begins.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI.
retire_date	Retire Date	The date on which a CI is no longer active.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
warehouse_loc	Warehouse Location	The physical location of a warehouse or other storage facility where a CI resides after it has been received and is in "in stock" status.

Facilities.Uninterruptible Power Supply Attributes

The Facilities.Uninterruptible Power Supply family includes the following attributes that correspond to the fac_upsx extension table:

Object Name	Label	Description
active_date	Activation Date	The date on which the CI was put into active status.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_end_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_start_date	Lease Effective Date	The date on which a lease begins.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which

Object Name	Label	Description
		a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
warehouse_loc	Warehouse Location	The physical location of a warehouse or other storage facility where a CI resides after it has been received and is in "in stock" status.

Hardware Families

The Hardware families include the following:

Hardware.Logical Partition

Identifies Logical Partitions (LPAR) that are a mainframe architecture that segments a single system into several independent logical systems.

Hardware.Mainframe

Identifies large central computing devices, traditionally manufactured by IBM and running z/OS, OS/390, and so on.

Hardware.Monitor

Identifies computer, video, and surveillance displays. Includes CRT's, LCD's, and plasma monitors.

Hardware.Other

Identifies miscellaneous IT hardware.

Hardware.Printer

Identifies a device typically connected to a computing system which converts electronic documents to visual physical media, usually paper.

Hardware.Server

Identifies computers on a network whose main function is to respond to requests from other computers rather than provide a display and keyboard to an individual user.

Hardware.Storage

Identifies units designed to store electronic data. Tape drives, optical disks, and SANs are all included.

Hardware.Virtual Machine

Identifies servers running on a system simulated in software, for example, VMWare, MSVM.

Hardware.Workstation

Identifies computers primarily used by end-users rather than serving other computers.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Hardware.Logical Partition	Logical Partition	har_lparx	ci_hardware_lpar	Mainframe Logical Partition
Hardware.Mainframe	Cray	har_maix	ci_hardware_mainframe	Cray Mainframe
Hardware.Mainframe	Group 80	har_maix	ci_hardware_mainframe	Group 80 Mainframe
Hardware.Mainframe	MVS	har_maix	ci_hardware_mainframe	MVS Mainframe
Hardware.Mainframe	OS/390	har_maix	ci_hardware_mainframe	OS/390 Mainframe
Hardware.Mainframe	Other Hardware Mainframe	har_maix	ci_hardware_mainframe	Miscellaneous Mainframe Hardware
Hardware.Mainframe	System 390	har_maix	ci_hardware_mainframe	System 390 Hardware
Hardware.Mainframe	System Z	har_maix	ci_hardware_mainframe	System Z Hardware
Hardware.Mainframe	Tandem - Mainframe	har_maix	ci_hardware_mainframe	Tandem Hardware
Hardware.Mainframe	Unisys.Mainframe	har_maix	ci_hardware_mainframe	Unisys Mainframe Hardware
Hardware.Mainframe	VAX - Mainframe	har_maix	ci_hardware_mainframe	VAX Hardware
Hardware.Mainframe	Virtual Storage Array	har_maix	ci_hardware_mainframe	Virtual Storage Array Hardware

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Hardware.Mainframe	z/OS	har_maix	ci_hardware_mainframe	z/OS Hardware
Hardware.Monitor	CRT	har_monx	ci_hardware_monitor	Cathode Ray Tube Monitor
Hardware.Monitor	Flat Screen	har_monx	ci_hardware_monitor	Flat Screen Monitor
Hardware.Monitor	Other Monitor	har_monx	ci_hardware_monitor	Miscellaneous Display Hardware
Hardware.Monitor	Terminal	har_monx	ci_hardware_monitor	Terminal Hardware
Hardware.Other	Barcode Reader	har_othx	ci_hardware_other	Barcode Reader Hardware
Hardware.Other	Copier	har_othx	ci_hardware_other	Copier Hardware
Hardware.Other	Digital Camera	har_othx	ci_hardware_other	Digital Camera
Hardware.Other	Electronic Whiteboard	har_othx	ci_hardware_other	Electronic Whiteboard
Hardware.Other	Other Hardware	har_othx	ci_hardware_other	Miscellaneous Hardware
Hardware.Other	Projector	har_othx	ci_hardware_other	Projector Hardware
Hardware.Other	Shredder	har_othx	ci_hardware_other	Shredder Hardware
Hardware.Other	Television	har_othx	ci_hardware_other	Television Hardware
Hardware.Other	VCR/DVD	har_othx	ci_hardware_other	VCR/DVD Hardware
Hardware.Other	Video Camera	har_othx	ci_hardware_other	Video Camera Hardware
Hardware.Printer	Bubble Jet	har_prix	ci_hardware_printer	Bubble Jet
Hardware.Printer	Ink Jet	har_prix	ci_hardware_printer	Ink Jet
Hardware.Printer	Laser	har_prix	ci_hardware_prin	Laser Printer

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
			ter	
Hardware.Printer	Microfiche	har_prix	ci_hardware_printer	Microfiche Printer
Hardware.Printer	Other Printer	har_prix	ci_hardware_printer	Miscellaneous Printer Hardware
Hardware.Printer	Plotter	har_prix	ci_hardware_printer	Plotter Printer
Hardware.Server	AIX	har_serx	ci_hardware_server	Server using AIX
Hardware.Server	HP UX	har_serx	ci_hardware_server	Server using HP-UX
Hardware.Server	Linux	har_serx	ci_hardware_server	Server using Linux
Hardware.Server	Other Operating System	har_serx	ci_hardware_server	Server using miscellaneous OS
Hardware.Server	Server	har_serx	ci_hardware_server	Server Hardware
Hardware.Server	Sun	har_serx	ci_hardware_server	Server using Sun
Hardware.Server	Tandem	har_serx	ci_hardware_server	Server using Tandem
Hardware.Server	Unisys	har_serx	ci_hardware_server	Server using Unisys
Hardware.Server	UNIX	har_serx	ci_hardware_server	Server using UNIX
Hardware.Server	VAX	har_serx	ci_hardware_server	Server using VAX
Hardware.Server	VM	har_serx	ci_hardware_server	Server using VM
Hardware.Server	Windows	har_serx	ci_hardware_server	Server using Windows
Hardware.Storage	CD-Rom Drive	har_stox	ci_hardware_storage	CD-Rom Drive
Hardware.Storage	Disk Array	har_stox	ci_hardware_stor	Disk Array

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
			age	
Hardware.Storage	DVD	har_stox	ci_hardware_storage	DVD Storage
Hardware.Storage	File System	har_stox	ci_hardware_storage	File System Storage
Hardware.Storage	Hard Drive	har_stox	ci_hardware_storage	Hard Drive
Hardware.Storage	Network Attached Storage	har_stox	ci_hardware_storage	Network Attached Storage
Hardware.Storage	Optical	har_stox	ci_hardware_storage	Optical Hardware
Hardware.Storage	Other Hardware Storage	har_stox	ci_hardware_storage	Miscellaneous Storage Hardware
Hardware.Storage	Silo	har_stox	ci_hardware_storage	Storage Silo Hardware
Hardware.Storage	Storage Area Network	har_stox	ci_hardware_storage	Storage Area Network (SAN) Hardware
Hardware.Storage	Tape Array	har_stox	ci_hardware_storage	Tape Storage Array
Hardware.Storage	Tape Library	har_stox	ci_hardware_storage	Tape Storage Library
Hardware.Storage	Virtual Tape System	har_stox	ci_hardware_storage	Virtual Tape System
Hardware.Storage	Zip Drive	har_stox	ci_hardware_storage	Zip Drive Hardware
Hardware.Virtual Machine	ESX Server	har_virx	ci_hardware_virtual	ESX Server
Hardware.Virtual Machine	GSX Server	har_virx	ci_hardware_virtual	GSX Server
Hardware.Virtual Machine	Microsoft Virtual Server	har_virx	ci_hardware_virtual	Microsoft Virtual Server
Hardware.Virtual Machine	Other Hardware Virtual	har_virx	ci_hardware_virtual	Miscellaneous Virtual Machines

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
	Machine			
Hardware.Workstation	Workstation	har_worx	ci_hardware_workstation	Workstation Hardware

Hardware.Logical Partition Attributes

The Hardware.Logical Partition family includes the following attributes that correspond to the har_lparx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
current_memory	Current Memory Used	An indication of how much memory is used, as opposed to the total amount available.
current_processors	Current Processors Used	An indication of how many of the processors are in use compared to the number available.
desired_memory	Desired Amount of Memory	The amount of memory to be allocated to a logical partition as long as the memory on the managed resource is not overcommitted.
desired_processors	Desired Number of Processors	The number of processors to be allocated to a logical partition as long as the processors on the managed resource are not overcommitted.
disk_type	Disk Type	The type of disk drive that resides on a workstation or server.
hard_drive_capacity	Disk Capacity	The amount of hard drive capacity that is available for use on a Hardware CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_start_date	Lease Effective Date	The date on which a lease becomes effective (also known as the lease start date).
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the

Object Name	Label	Description
		vendor.
lease_end_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
max_memory	Maximum Memory Size	The maximum amount of memory available in an LPAR.
max_processors	Maximum Number of Processors	The maximum number of processors available in an LPAR.
mem_capacity	Memory Capacity	The total amount of memory that can be installed and made available.
min_memory	Minimum Amount of Memory	The minimum amount of memory required for an LPAR.
min_processors	Minimum Number of Processors	The minimum number of processors required for an LPAR.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
number_mips	MIPS	An indication of the processing speed and capacity of a hardware or network device.
panel_display	Panel Display	The operator console used to manage logical partition configurations and booting, starting, and stopping of system or individual partitions.
phys_mem	Memory Installed	The physical amount of memory installed on a hardware device.
priority	Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proc_speed	Processor Speed	A measurement of the rate at which a computer performs its operations.
proc_type	Processor Type	The kind of CPU in a hardware device.
profile	Profile	The configuration name for a logical partition which indicates the desired system resource allocations.

Object Name	Label	Description
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.

Hardware.Mainframe Attributes

The Hardware.Mainframe family includes the following attributes that correspond to the har_maix extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
disk_type	Disk Type	The type of disk drive that resides on a workstation or server.
hard_drive_capacity	Disk Capacity	The amount of hard drive capacity that is available for use on a Hardware CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease becomes effective (also known as the lease start date).
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_end_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.

Object Name	Label	Description
mem_capacity	Memory Capacity	The total amount of memory that can be installed and made available.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
number_mips	MIPS	An indication of the processing speed and capacity of a hardware or network device.
phys_mem	Memory Installed	The physical amount of memory installed on a hardware device.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proc_speed	Processor Speed	A measurement of the rate at which a computer performs its operations.
proc_type	Processor Type	The kind of CPU in a hardware device.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.

Hardware.Monitor Attributes

The Hardware.Monitor family includes the following attributes that correspond to the har_monx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_dat	Lease Effective Date	The date on which a lease becomes effective (also known

Object Name	Label	Description
e		as the lease start date).
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.

Hardware.Other Attributes

The Hardware.Other family includes the following attributes that correspond to the har_othx extension table:

Object Name	Label	Description
active_date	Activation Date	The date on which the CI was put into active status.
array_name	Storage Array Name	The identifier for an enterprise storage system that contains multiple disk drives and performs functions like RAID and virtualization.

Object Name	Label	Description
array_serial_num	Storage Array Serial Number	The manufacturer's serial number for an enterprise storage system that contains multiple disk drives and performs functions like RAID and virtualization.
bios_ver	BIOS Version	The version number of the BIOS - the code that's run when a personal computer starts up.
cd_rom_type	CD ROM Type	The type of CD ROM drive that resides on a workstation or server.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
disk_type	Disk Type	The type of disk drive that resides on a workstation or server.
graphics_card	Graphics Card Model	The model designation for an expansion card that is installed in an available slot in a device for enhanced graphics capabilities.
hard_drive_capacity	Disk Capacity	The amount of hard drive capacity that is available for use on a Hardware CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease becomes effective (also known as the lease start date).
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_end_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
media_drive_num	Media Drive Capacity	The capacity of the hardware device that consolidates multiple memory cards into one unit.
media_type	Media Type	The kind of storage media on a hardware device, for example, disk, CD ROM.
mem_cache_proc	Processor Cache	The identifier of the hardware device that processes the high-speed memory storage between memory and the CPU.

Object Name	Label	Description
mem_capacity	Memory Capacity	The total amount of memory that can be installed and made available.
memory_shares	Number of Memory Shares	The specified memory share granted to this virtual machine.
modem_card	Modem Card	The identifier of a card in a workstation or network device that enables a faster connection to a network or the Internet.
modem_type	Modem Type	The classification/speed of a modem used by a workstation for a faster connection to a network or the Internet.
monitor	Monitor Model	The type of display unit connected to a hardware, network, or telecom device.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
net_card	Network Card	The designation for an expansion card that is installed in an available slot in a computer or network device so that it can connect and communicate to another networked component.
number_mips	MIPS	An indication of the processing speed and capacity of a hardware or network device.
number_net_card	Number of Network Cards	The number of expansion cards that have been installed in the available slots in a computer.
number_net_port	Number of Network Ports	The total number of ports in use on a device.
number_net_port_conn	Number of Network Port Connections	The total number of ports on a server.
number_proc_inst	Number of Processors Installed	The total number of processors installed on a hardware or network device.
number_slot_proc	Processor Capacity	The total number of processor slots on a hardware device.
phys_mem	Memory Installed	The physical amount of memory installed on a hardware device.
printer	Printer	The type or model of printer attached to a hardware or network device.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.

Object Name	Label	Description
proc_speed	Processor Speed	A measurement of the rate at which a computer performs its operations.
proc_type	Processor Type	The kind of CPU in a hardware device.
processor_count	Processor Capacity	The number of CPU's or microprocessors available on a Hardware CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI.
retire_date	Retire Date	The date on which a CI is no longer active.
role	Role	The business function supported by a hardware or network device, for example, production, test.
security_patch_level	Security Patch Level	An indication of the current security patch version for this CI.
server_type	Server Type	The kind of server, for example, application, mail, web, proxy, FTP.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
slot_mem_used	Number of Memory Slots Used	The amount of memory in use from the available memory cards in a hardware or network device.
slot_total_mem	Number of Memory Slots	The total amount of memory available on memory cards in a hardware or network device.
swap_size	Swap Size	The size of the disk space allocated on a hardware or network device to store the state of a process that has been swapped out.
technology	Technology	The technology, TCP/IP, Ethernet, FDDI, and so on, employed by a hardware or network device.
total_capacity	Total Disk Capacity	The total amount of storage available on a hardware device.
type_net_conn	Type of Network Connection	An indication of the kind of network connection used by a hardware or network device.
used_space	Total Disk Used	The amount of available disk storage space that is in use by a CI.

Hardware.Printer Attributes

The Hardware.Printer family includes the following attributes that correspond to the har_prix extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease becomes effective (also known as the lease start date).
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_end_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.

Hardware.Server Attributes

The Hardware.Server family includes the following attributes that correspond to the har_serx extension table:

Object Name	Label	Description
active_date	Activation Date	The date on which the CI was put into active status.
bios_ver	BIOS Version	The version number of the BIOS - the code that's run when a personal computer starts up.
cd_rom_type	CD ROM Type	The type of CD ROM drive that resides on a workstation or server.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
hard_drive_capacity	Disk Capacity	The amount of hard drive capacity that is available for use on a Hardware CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease becomes effective (also known as the lease start date).
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mem_capacity	Memory Capacity	The total amount of memory that can be installed and made available.
monitor	Monitor Model	The type of display unit connected to a hardware, network, or telecom device.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.

Object Name	Label	Description
net_card	Network Card	The designation for an expansion card that is installed in an available slot in a computer or network device so that it may connect and communicate to another networked component.
number_mips	MIPS	An indication of the processing speed and capacity of a hardware or network device.
number_net_card	Number of Network Cards	The number of expansion cards that have been installed in the available slots in a computer.
number_net_port	Number of Network Ports	The total number of ports in use on a device.
number_net_port_conn	Number of Network Port Connections	The total number of ports on a server.
number_proc_inst	Number of Processors Installed	The total number of processors installed on a hardware or network device.
number_slot_proc	Processor Capacity	The total number of processor slots on a hardware device.
panel_display	Panel Display	The operator console used to manage logical partition configurations and booting, starting, and stopping of system or individual partitions.
phys_mem	Memory Installed	The physical amount of memory installed on a hardware device.
printer	Printer	The type or model of printer attached to a hardware or network device.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proc_speed	Processor Speed	A measurement of the rate at which a computer performs its operations.
proc_type	Processor Type	The kind of CPU in a hardware device.
profile	Profile	The configuration name for a logical partition which indicates the desired system resource allocations.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI.
retire_date	Retire Date	The date on which a CI is no longer active.
role	Role	The business function supported by a hardware or network device, for example, production, test.
security_patch_level	Security Patch Level	An indication of the current security patch version for this CI.

Object Name	Label	Description
server_type	Server Type	The kind of server, for example, application, mail, web, proxy, FTP.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
slot_mem_used	Number of Memory Slots Used	The amount of memory in use from the available memory cards in a hardware or network device.
slot_total_mem	Number of Memory Slots	The total amount of memory available on memory cards in a hardware or network device.
swap_size	Swap Size	The size of the disk space allocated on a hardware or network device to store the state of a process that has been swapped out.
technology	Technology	The technology, TCP/IP, Ethernet, FDDI, and so on, employed by a hardware or network device.
type_net_conn	Type of Network Connection	An indication of the kind of network connection used by a hardware or network device.

Hardware.Storage Attributes

The Hardware.Storage family includes the following attributes that correspond to the har_stox extension table:

Object Name	Label	Description
active_date	Activation Date	The date on which the CI was put into active status.
array_name	Storage Array Name	The identifier for an enterprise storage system that contains multiple disk drives and performs functions like RAID and virtualization.
array_serial_num	Storage Array Serial Number	The manufacturer's serial number for an enterprise storage system that contains multiple disk drives and performs functions like RAID and virtualization.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
disk_type	Disk Type	The type of disk drive that resides on a workstation or server.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_dat	Lease Effective Date	The date on which a lease becomes effective (also known

Object Name	Label	Description
e		as the lease start date).
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
media_drive_num	Media Drive Capacity	The capacity of the hardware device that consolidates multiple memory cards into one unit.
media_type	Media Type	The kind of storage media on a hardware device, for example, disk, CD ROM.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
total_capacity	Total Disk Capacity	The total amount of storage available on a hardware device.
used_space	Total Disk Used	The amount of available disk storage space that is in use by a CI.

Hardware.Virtual Machine Attributes

The Hardware.Virtual Machine family includes the following attributes that correspond to the har_virx extension table:

Object Name	Label	Description
active_date	Activation Date	The date on which the CI was put into active status.
bios_ver	BIOS Version	The version number of the BIOS - the code that's run when a personal computer starts up.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
cpu_shares	Number of CPU Shares	The specified CPU shares granted to this virtual machine.
disk_type	Disk Type	The type of disk drive that resides on a workstation or server.
hard_drive_capacity	Disk Capacity	The amount of hard drive capacity that is available for use on a Hardware CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease becomes effective (also known as the lease start date).
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
media_type	Media Type	The kind of storage media on a hardware device, for example, disk, CD ROM.
mem_capacity	Memory Capacity	The total amount of memory that can be installed and made available.
memory_shares	Number of Memory Shares	The specified memory share granted to this virtual machine.

Object Name	Label	Description
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
number_mips	MIPS	An indication of the processing speed and capacity of a hardware or network device.
phys_mem	Memory Installed	The physical amount of memory installed on a hardware device.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proc_speed	Processor Speed	A measurement of the rate at which a computer performs its operations.
proc_type	Processor Type	The kind of CPU in a hardware device.
processor_affinity	Processor Affinity	An indicator of the preferred processor on which a task should be scheduled to run.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI.
retire_date	Retire Date	The date on which a CI is no longer active.
security_patch_level	Security Patch Level	An indication of the current security patch version for this CI.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
virtual_processors	Number of Virtual Processors	The number of virtual processors, the representations of physical processors to the operating system of a logical partition that uses the shared processor pool.

Hardware.Workstation Attributes

The Hardware.Workstation family includes the following attributes that correspond to the har_worx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
bios_ver	BIOS Version	The version number of the BIOS - the code that's run when a personal computer starts up.

Object Name	Label	Description
cd_rom_type	CD ROM Type	The type of CD ROM drive that resides on a workstation or server.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
disk_type	Disk Type	The type of disk drive that resides on a workstation or server.
graphics_card	Graphics Card Model	The model designation for an expansion card that is installed in an available slot in a device for enhanced graphics capabilities.
hard_drive_capacity	Disk Capacity	The amount of hard drive capacity that is available for use on a Hardware CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease becomes effective (also known as the lease start date).
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
max_memory	Maximum Memory Size	The maximum amount of memory available in an LPAR.
max_processors	Maximum Number of Processors	The maximum number of processors available in an LPAR.
media_drive_num	Media Drive Capacity	The capacity of the hardware device that consolidates multiple memory cards into one unit.
media_type	Media Type	The kind of storage media on a hardware device, for example, disk, CD ROM.
mem_cache_proc	Processor Cache	The identifier of the hardware device that processes the high-speed memory storage between memory and the CPU.

Object Name	Label	Description
mem_capacity	Memory Capacity	The total amount of memory that can be installed and made available.
modem_card	Modem Card	The identifier of a card in a workstation or network device that enables a faster connection to a network or the Internet.
modem_type	Modem Type	The classification/speed of a modem used by a workstation for a faster connection to a network or the Internet.
monitor	Monitor Model	The type of display unit connected to a hardware, network, or telecom device.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
net_card	Network Card	The designation for an expansion card that is installed in an available slot in a computer or network device so that it may connect and communicate to another networked component.
number_proc_inst	Number of Processors Installed	The total number of processors installed on a hardware or network device.
number_slot_proc	Processor Capacity	The total number of processor slots on a hardware device.
phys_mem	Memory Installed	The physical amount of memory installed on a hardware device.
printer	Printer	The type or model of printer attached to a hardware or network device.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proc_speed	Processor Speed	A measurement of the rate at which a computer performs its operations.
proc_type	Processor Type	The kind of CPU in a hardware device.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retired Date	The date on which a CI is no longer active.
scsi_card	SCSI Card Model	The model identifier for a card that provides a standard interface and command set for transferring data between

Object Name	Label	Description
		internal and external peripheral devices.
security_patch_level	Security Patch Level	An indication of the current security patch version for this CI.
svclvl	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for the IT component.
slot_mem_used	Number of Memory Slots Used	The amount of memory in use from the available memory cards in a hardware or network device.
slot_total_mem	Number of Memory Slots	The total amount of memory available on memory cards in a hardware or network device.

Investment Families

The Investment families include the following:

Investment.Idea

Identifies the initial stage of creating new opportunities for investment such as projects, assets, applications, products, services, and other work. Ideas are containers for pertinent information that become the foundation for specific investments.

Investment.Other

Identifies a broad category to include investments in Application, Asset, Product, Service, and Other Work.

Investment.Project

Identifies a set of activities designed to achieve a specific objective. Labor, time, and budget constraints guide the projects.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Investment.Idea	Portfolio Idea	invidex	ci_investment_idea	Ideas are the initial stage of creating new opportunities for investment such as projects, assets, applications, products, services, and other work. Ideas lay the foundation for a specific type of investment by serving as a container for pertinent information.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Investment. Other	Portfolio Application	invothx	ci_investment _other	Captures data specific to applications running or being implemented in an organization.
Investment. Other	Portfolio Asset	invothx	ci_investment _other	Captures data specific to assets which incur costs and benefits for an organization.
Investment. Other	Portfolio Product	invothx	ci_investment _other	Captures data specific to products produced or owned by an organization.
Investment. Other	Portfolio Service	invothx	ci_investment _other	Captures data specific to services provided by an organization.
Investment. Other	Portfolio Work	invothx	ci_investment _other	Captures data specific to steady-state work performed. Other work can represent overhead tasks such as management and maintenance.
Investment. Project	Portfolio Program	invprjx	ci_investment _project	A Program is a top-level project that serves as the parent or "umbrella" project to one or more child projects.
Investment. Project	Portfolio Project	invprjx	ci_investment _project	A Project is a set of activities designed to achieve a specific objective. Projects are guided by labor, time and budget constraints.

Investment.Idea Attributes

The Investment.Idea family includes the following class:

- Portfolio Idea

The Investment.Idea family includes the following attributes that correspond to the invidex extension table:

Object Name	Label
business_unit	Business Unit
dependencies	Dependencies
est_finish_date	Estimated Finish Date

est_start_date	Estimated Start Date
existing_initiative_impact	Existing Initiative Impact
general_notes	General Notes
idea_priority	Idea Priority
owner	Owner
risks	Risks
subject	Subject
target_manager	Target Manager

Investment.Other Attributes

The Investment.Other family includes the following classes:

- Portfolio Application
- Portfolio Asset
- Portfolio Product
- Portfolio Service
- Portfolio Work

The Investment.Other family includes the following attributes that correspond to the invothx extension table:

Object Name	Label
active	Investment Active?
alignment	Alignment
charge_code	Charge Code
currency	Currency
finish_date	Finish Date
goal	Goal
investment_priority	Investment Priority
investment_status	Investment Status
manager	Manager
progress	Progress
risk	Risk
stage	Stage

start_date	Start Date
status_comment	Investment Status Comment
status_indicator	Investment Status Indicator
total_cost	Total Cost
total_effort	Total Effort
type	Investment Type

Investment.Project Attributes

The Investment.Project family includes the following classes:

- Portfolio Program
- Portfolio Project

The Investment.Project family includes the following attributes that correspond to the invprjx extension table:

Object Name	Label
active	Project Active?
alignment	Alignment
charge_code	Charge Code
currency	Currency
finish_date	Finish Date
goal	Goal
manager	Manager
progress	Progress
project_priority	Project Priority
project_status	Project Status
risk	Risk
stage	Stage
start_date	Start Date
status_comment	Project Status Comment
status_indicator	Project Status Indicator
total_cost	Total Cost

total_effort	Total Effort

Location Family

The Location family includes the following:

Location

Identifies a physical position or site.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Location	Building	locx	ci_location	A site contained within a single physical structure
Location	Campus	locx	ci_location	A group of buildings
Location	City	locx	ci_location	A governmental designation of a relatively large and populous area
Location	Country	locx	ci_location	An area comprised of multiple cities, regions, or states
Location	Datacenter	locx	ci_location	A site dedicated to IT operations
Location	Floor	locx	ci_location	A segment of a site on a single floor

Location Attributes

The Location family includes the following class:

base_location

Specifies the location that the CI represents (SREL uuid to loc). Represents an exclusive relationship where only one CI represents a location in the Location family.

The Location family includes the following attributes that correspond to the locx extension table:

Object Name	Label
address1	Address
city	City
country	Country

Object Name	Label
description	Description
site	Site
state	State/Province
zip	ZIP/Postal Code

Network Families

The Network families include the following:

Network.Bridge

Identifies an abstract device that connects multiple network segments along the data link layer.

Network.Controller

Identifies miscellaneous devices that throttle or manage bandwidth use.

Network.Frontend

Identifies a network front-end device that handles communication with host computers such as mainframes.

Network.Hub

Identifies a network device that connects together network devices by repeating the signal received at one port to others.

Network.Network Interface Card

Identifies a Network Interface Card (NIC) using any network communications protocol. Ethernet LAN and FDDI Ring network cards are NICs.

Network.Other

Identifies unclassified network components.

Network.Peripheral

Identifies network peripherals that are appliances such as printers and FAX machines that contain their own NIC cards.

Network.Port

Identifies a port on a network hub or switch that is used to connect to other hubs and switches instead of an end station.

Network.Router

Identifies any device in a network that routes messages between computers.

Network.Switch

Identifies a network device that intelligently forwards packets received at one port to other ports.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Network.Bridge	Bridge	net_brix	ci_network_bridge	Network Bridge
Network.Controller	Controller	net_conx	ci_network_controller	Controller
Network.Frontend	3270 Terminal	net_frox	ci_network_frontend	3270 Terminal
Network.Frontend	Network Terminal	net_frox	ci_network_frontend	Network Terminal
Network.Frontend	X Terminal	net_frox	ci_network_frontend	X Terminal
Network.Hub	Network Hub	net_hubx	ci_network_hub	Hub on a network
Network.Network	Interface Card	net_nicx	ci_network_nic	Network Interface Card (NIC)
Network.Other	Other Network Device	net_othx	ci_network_other	Other Network Device
Network.Peripheral	Fax Machine	net_perx	ci_network_peripheral	Fax Machine
Network.Port	Port	net_porx	ci_network_port	Network Port
Network.Router	Router	net_roux	ci_network_router	Ethernet Router
Network.Switch	Network Switch	net_gatx	ci_network_gateway	Network Switch

Network.Bridge Attributes

The Network.Bridge family includes the following attributes that correspond to the net_brix extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
addr_class	Address Class	IP address values are arranged in Address Classes (A, B, and C). The Address Classes determine how many workstations can possibly exist on the network.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
gateway_id	Gateway ID	The unique identifier for a network point that acts as an entrance (gateway) to another network
ip_mgmt_addr	Management IP Address	The IP address assigned to a station (PC or workstation) that is authorized for either manager- or operator-level access to a switch.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease begins
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of

Object Name	Label	Description
		maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
number_net_card	Number of Network Cards	The number of expansion cards that have been installed in the available slots in a computer.
number_net_port	Number of Network Ports	The total number of ports in use on a server.
number__net_port_conn	Number of Network Port Connections	The total number of network port connections.
number_ports	Number of Ports	The total number of ports on a network device.
number_ports_used	Number of Ports Used	The total number of ports in use on a network device.
os_version	OS Version	The version number of a CI's operating system.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
protocol	Protocol	The communication method employed by a network device.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
role	Role	The business function supported by a hardware or network device, for example, production, test.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.

Object Name	Label	Description
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address, for example, 255.128.0.0.
type_net_conn	Type of Network Connection	An indication of the kind of network connection used by a hardware or network device.

Network.Controller Attributes

The Network.Controller family includes the following attributes that correspond to the net_conx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
addr_class	Address Class	IP address values are arranged in Address Classes (A, B, and C). The Address Classes determine how many workstations can possibly exist on the network.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
ip_mgmt_addr	Management IP Address	The IP address assigned to a station (PC or workstation) that is authorized for either manager- or operator-level access to a switch.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease begins
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.

Object Name	Label	Description
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
number_mips	MIPS	An indication of the processing speed and capacity of a hardware or network device.
number_net_card	Number of Network Cards	The number of expansion cards that have been installed in the available slots in a computer.
number_net_port	Number of Network Ports	The total number of ports in use on a server.
number_net_port_conn	Number of Network Port Connections	The total number of network port connections.
number_ports	Number of Ports	The total number of ports on a network device.
number_ports_used	Number of Ports Used	The total number of ports in use on a network device.
number_proc_inst	Number of Processors Installed	The total number of processors installed on a hardware or network device.
number_smips	Number of SMIPS	The toal number of SMIPS.
os_version	OS Version	The version number of a CI's operating system.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.

Object Name	Label	Description
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
role	Role	The business function supported by a hardware or network device, for example, production, test.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address, for example, 255.128.0.0.
technology	Technology	The technology (TCP/IP, Ethernet, FDDI, and so on) employed by a hardware or network device.
type_net_conn	Type of Network Connection	An indication of the kind of network connection used by a hardware or network device.

Network.Frontend Attributes

The Network.Frontend family includes the following attributes that correspond to the net_frox extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
addr_class	Address Class	IP address values are arranged in Address Classes (A, B, and C). The Address Classes determine how many workstations can possibly exist on the network.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
ip_mgmt_addr	Management IP Address	The IP address assigned to a station (PC or workstation) that is authorized for either manager- or operator-level access to a switch.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.

Object Name	Label	Description
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease begins
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
number_mips	MIPS	An indication of the processing speed and capacity of a hardware or network device.
number_net_card	Number of Network Cards	The number of expansion cards that have been installed in the available slots in a computer.
number_net_port	Number of Network Ports	The total number of ports in use on a server.
number_net_port_conn	Number of Network Port Connections	The total number of network port connections.
number_ports	Number of Ports	The total number of ports on a network device.

Object Name	Label	Description
number_ports_used	Number of Ports Used	The total number of ports in use on a network device.
number_proc_inst	Number of Processors Installed	The total number of processors installed on a hardware or network device.
number_smips	Number of SMIPS	The total number of SMIPS.
os_version	OS Version	The version number of a CI's operating system.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
role	Role	The business function supported by a hardware or network device, for example, production, test.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address, for example, 255.128.0.0.
technology	Technology	The technology (TCP/IP, Ethernet, FDDI, and so on) employed by a hardware or network device.
type_net_conn	Type of Network Connection	An indication of the kind of network connection used by a hardware or network device.

Network.Hub Attributes

The Network.Hub family includes the following attributes that correspond to the net_hubx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
addr_class	Address Class	IP address values are arranged in Address Classes (A, B, and C). The Address Classes determine how many workstations can possibly exist on the network.

Object Name	Label	Description
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
gateway_id	Gateway ID	The unique identifier for a network point that acts as an entrance (gateway) to another network
ip_mgmt_addr	Management IP Address	The IP address assigned to a station (PC or workstation) that is authorized for either manager- or operator-level access to a switch.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease begins
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.

Object Name	Label	Description
net_card	Network Card	The designation for an expansion card that is installed in an available slot in a computer or network device so that it may connect and communicate to another networked component.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
number_net_card	Number of Network Cards	The number of expansion cards that have been installed in the available slots in a computer.
number_net_port	Number of Network Ports	The total number of ports in use on a server.
number_net_port_conn	Number of Network Port Connections	The total number of network port connections.
number_ports	Number of Ports	The total number of ports on a network device.
number_ports_used	Number of Ports Used	The total number of ports in use on a network device.
os_version	OS Version	The version number of a CI's operating system.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
role	Role	The business function supported by a hardware or network device, for example, production, test.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address, for example, 255.128.0.0.
technology	Technology	The technology (TCP/IP, Ethernet, FDDI, and so on) employed by a hardware or network device.
type_net_conn	Type of Network	An indication of the kind of network connection used by a

Object Name	Label	Description
	Connection	hardware or network device.

Network.Network Interface Card Attributes

The Network.Network Interface Card family includes the following attributes that correspond to the net_nicx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
addr_class	Address Class	IP address values are arranged in Address Classes (A, B, and C). The Address Classes determine how many workstations can possibly exist on the network.
gateway_id	Gateway ID	The unique identifier for a network point that acts as an entrance (gateway) to another network
ip_mgmt_addr	Management IP Address	The IP address assigned to a station (PC or workstation) that is authorized for either manager- or operator-level access to a switch.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
line_speed	Line Speed	The rate at which information is transmitted on a network connection.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.

Object Name	Label	Description
number_net_card	Number of Network Cards	The number of expansion cards that have been installed in the available slots in a computer.
number_net_port	Number of Network Ports	The total number of ports in use on a server.
number_net_port_conn	Number of Network Port Connections	The total number of network port connections.
number_ports	Number of Ports	The total number of ports on a network device.
number_ports_used	Number of Ports Used	The total number of ports in use on a network device.
os_version	OS Version	The version number of a CI's operating system.
protocol	Protocol	The communication method employed by a network device.
retire_date	Retire Date	The date on which a CI is no longer active.
role	Role	The business function supported by a hardware or network device, for example, production, test.
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address, for example, 255.128.0.0.
technology	Technology	The technology (TCP/IP, Ethernet, FDDI, and so on) employed by a hardware or network device.

Object Name	Label	Description
type_net_conn	Type of Network Connection	An indication of the kind of network connection used by a hardware or network device.

Network.Other Attributes

The Network.Other family includes the following attributes that correspond to the net_othx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
bios_ver	BIOS Version	The version number of the BIOS - the code that is run when a personal computer starts up.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
gateway_id	Gateway ID	The unique identifier for a network point that acts as an entrance (gateway) to another network
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease begins
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.

Object Name	Label	Description
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
os_version	OS Version	The version number of a CI's operating system.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address, for example, 255.128.0.0.

Network.Peripheral Attributes

The Network.Peripheral family includes the following attributes that correspond to the net_perx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
addr_class	Address Class	IP address values are arranged in Address Classes (A, B, and C). The Address Classes determine how many workstations can possibly exist on the network.

Object Name	Label	Description
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
gateway_id	Gateway ID	The unique identifier for a network point that acts as an entrance (gateway) to another network.
ip_mgmt_addr	Management IP Address	The IP address assigned to a station (PC or workstation) that is authorized for either manager- or operator-level access to a switch.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease begins
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.

Object Name	Label	Description
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
number_net_card	Number of Network Cards	The number of expansion cards that have been installed in the available slots in a computer.
number_net_port	Number of Network Ports	The total number of ports in use on a server.
number_net_port_conn	Number of Network Port Connections	The total number of network port connections.
number_ports	Number of Ports	The total number of ports on a network device.
number_ports_used	Number of Ports Used	The total number of ports in use on a network device.
os_version	OS Version	The version number of a CI's operating system.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
role	Role	The business function supported by a hardware or network device, for example, production, test.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address, for example, 255.128.0.0.
technology	Technology	The technology (TCP/IP, Ethernet, FDDI, and so on) employed by a hardware or network device.
type_net_conn	Type of Network Connection	An indication of the kind of network connection used by a hardware or network device.

Network.Port Attributes

The Network.Port family includes the following attributes that correspond to the net_porx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
addr_class	Address Class	IP address values are arranged in Address Classes (A, B, and C). The Address Classes determine how many workstations can possibly exist on the network.
channel_address	Channel Address	The tag used to identify a channel on a port.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
domain	Domain	The identifier of the logical grouping (domain) to which a network or telecom device is assigned.
gateway_id	Gateway ID	The unique identifier for a network point that acts as an entrance (gateway) to another network.
ip_mgmt_addr	Management IP Address	The IP address assigned to a station (PC or workstation) that is authorized for either manager- or operator-level access to a switch.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease begins

Object Name	Label	Description
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
line_speed	Line Speed	The rate at which information is transmitted on a network connection.
line_type	Line Type	The categorization of a network communication line, for example, ISDN.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
number_net_card	Number of Network Cards	The number of expansion cards that have been installed in the available slots in a computer.
number_net_port	Number of Network Ports	The total number of ports in use on a server.
number_net_port_conn	Number of Network Port Connections	The total number of network port connections.
number_ports	Number of Ports	The total number of ports on a network device.
number_ports_used	Number of Ports Used	The total number of ports in use on a network device.
os_version	OS Version	The version number of a CI's operating system.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.

Object Name	Label	Description
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
protocol	Protocol	The communication method employed by a network device.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
role	Role	The business function supported by a hardware or network device, for example, production, test.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address, for example, 255.128.0.0.
technology	Technology	The technology (TCP/IP, Ethernet, FDDI, and so on) employed by a hardware or network device.
type_net_conn	Type of Network Connection	An indication of the kind of network connection used by a hardware or network device.

Network.Router Attributes

The Network.Router family includes the following attributes that correspond to the net_roux extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
addr_class	Address Class	IP address values are arranged in Address Classes (A, B, and C). The Address Classes determine how many workstations can possibly exist on the network.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.

Object Name	Label	Description
flow	Flow	The amount of network traffic that can be handled by a router.
ip_mgmt_addr	Management IP Address	The IP address assigned to a station (PC or workstation) that is authorized for either manager- or operator-level access to a switch.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease begins
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mem_cache_proc	Processor Memory Cache	The identifier of the hardware device that processes the high-speed memory storage between memory and the CPU.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example,

Object Name	Label	Description
		192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
number_net_card	Number of Network Cards	The number of expansion cards that have been installed in the available slots in a computer.
number_net_port	Number of Network Ports	The total number of ports in use on a server.
number_net_port_conn	Number of Network Port Connections	The total number of network port connections.
number_ports	Number of Ports	The total number of ports on a network device.
number_ports_used	Number of Ports Used	The total number of ports in use on a network device.
number_proc_inst	Number of Ports Installed	The total number of processors installed on a hardware or network device.
os_version	OS Version	The version number of a CI's operating system.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
protocol	Protocol	The communication method employed by a network device.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
role	Role	The business function supported by a hardware or network device, for example, production, test.
rout_prot	Router Protocol	The communication method employed by a network router.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
slot_mem_used	Number of Memory Slots Used	The amount of memory in use from the available memory cards in a hardware or network device.
slot_total_mem	Number of Memory Slots	The total amount of memory available on memory cards in a hardware or network device.

Object Name	Label	Description
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address, for example, 255.128.0.0.
technology	Technology	The technology (TCP/IP, Ethernet, FDDI, and so on) employed by a hardware or network device.
type_net_conn	Type of Network Connection	An indication of the kind of network connection used by a hardware or network device.

Network.Switch Attributes

The Network.Switch family includes the following attributes that correspond to the net_gatx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
addr_class	Address Class	IP address values are arranged in Address Classes (A, B, and C). The Address Classes determine how many workstations can possibly exist on the network.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
gateway_id	Gateway ID	The unique identifier for a network point that acts as an entrance (gateway) to another network
graphics_card	Graphics Card Model	The model designation for an expansion card that is installed in an available slot in a device for enhanced graphics capabilities.
ip_mgmt_addr	Management IP Address	The IP address assigned to a station (PC or workstation) that is authorized for either manager- or operator-level access to a switch.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.

Object Name	Label	Description
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease begins
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
number_net_card	Number of Network Cards	The number of expansion cards that have been installed in the available slots in a computer.
number_net_port	Number of Network Ports	The total number of ports in use on a server.
number_net_port_conn	Number of Network Port Connections	The total number of network port connections.
number_ports	Number of Ports	The total number of ports on a network device.
number_ports_used	Number of Ports Used	The total number of ports in use on a network device.

Object Name	Label	Description
os_version	OS Version	The version number of a CI's operating system.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
role	Role	The business function supported by a hardware or network device, for example, production, test.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address, for example, 255.128.0.0.
technology	Technology	The technology (TCP/IP, Ethernet, FDDI, and so on) employed by a hardware or network device.
type_net_conn	Type of Network Connection	An indication of the kind of network connection used by a hardware or network device.

Organization Family

The Organization family includes the following:

Organization

Identifies an entity representing a structured group of persons.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Organization	External	orgx	ci_organization	An organization not part of the company
Organization	Internal	orgx	ci_organization	An organizational segment of the company

Organization Attributes

The Organization family contains the following class:

base_organization

Specifies the organization that the CI represents (SREL uuid to org). Represents an exclusive relationship where only one CI represents an organization in the Organization family.

The Organization family includes the following attributes that correspond to the net_orgx extension table:

Object Name	Label
alt_phone	Alternate Phone Number
billing_code	Billing Code
contact	Organization Contact
description	Description
email_addr	Email Address
fax_phone	Fax Number
location	Location
org_num	Organization Code
owning_contract	Service Contract
pemail_addr	Pager Email Address
phone_number	Primary Phone Number
service_type	Service Type
status	Configured Status

Security Family

The Security family includes the following:

Security

Identifies security systems that protect data, software, and hardware against unauthorized access or manipulation. These systems include digital certificates, directory services, and biomechanical or key-based systems.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Security	Application Security	secx	ci_security	Application Security
Security	Building Security	secx	ci_security	Building Security
Security	Data Security	secx	ci_security	Data Security
Security	Other Security	secx	ci_security	Miscellaneous Security

Security Attributes

The Security family includes the following attributes that correspond to the secx extension table:

Object Name	Label	Description
appl	Applies To	The designation of the domain of this security CI.
avail	Availability	An indication of when access to a security-related CI is offered.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
confidentiality_level	Confidentiality Level	The level of confidentiality (for example, view-only, high, medium, low) for a security-related CI.
integrity_level	Integrity Level	The level of integrity (for example, high, medium, low) for a particular security-related CI.
priority	Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
security_id	SecurityID	Number or other identifier for a security-related CI.
SLA	Service Level	The name or identifier of the contract between IT and the

Object Name	Label	Description
	Agreement	customer that governs the level of service and support options that are expected and acceptable for this IT component.

Service Family

Important: The Service family has been deprecated in CA CMDB r12.5. Use the Enterprise Service family instead.

The Service family comprises:

Service

Identifies an entity that delivers or performs a consistent set of tasks to a consumer. Services can be high-level business services or lower level IT technical services. Support, email, accounting are often delivered as services.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
Service	Component	serx	ci_service	CA NSM Business Process View (BPV) Component
Service	Document	serx	ci_service	CA NSM BPV Document
Service	Person	serx	ci_service	CA NSM BPV Person
Service	Practice	serx	ci_service	CA NSM BPV Practice
Service	Process	serx	ci_service	CA NSM BPV Process
Service	Role	serx	ci_service	CA NSM BPV Role
Service	Service	serx	ci_service	CA NSM BPV Service

Service Attributes

The Service family includes the following attributes that correspond to the serx extension table:

Object Name	Label	Description
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
end_dat	End Date	The date on which a service expires or is no longer valid.

Object Name	Label	Description
e		
portfolio	Service Portfolio	The name or identifier for a grouping of related services.
priority	Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
service_id	Service ID	The name or other unique identifier for a Service CI.
site	Site	A designation to describe the location of a CI.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
start_date	Start Date	The date on which a contract, document, service, or SLA becomes active.
type	Type	A description of the kind of Application, Contract, Document, Service, or SLA CI.
version	Version	A number or other identifier that indicates the current level (version) of an Application, Document, Service, or SLA CI.

Service Level Agreement (SLA) Family

The Service Level Agreement family includes the following classes that identify agreements between a service provider and consumer:

- Operational Level Agreement
- Other Service Level Agreement
- Service Level Agreement
- Underpinning Contract

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name
Service Level Agreement	Operational Level Agreement	slax	ci_sla
Service Level Agreement	Other Service Level Agreement	slax	ci_sla
Service Level Agreement	Service Level Agreement	slax	ci_sla

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name
Service Level Agreement	Underpinning Contract	slax	ci_sla

Service Level Agreement Attributes

The Service Level Agreement family includes the following attributes that correspond to the slax extension table:

Object Name	Label	Description
sla_category	Service Level Agreement Category	The high-level type designation for an application, service, SLA, or document.
sla_date_active	Service Level Agreement Activation Date	The date on which the Configuration Item was made available to users.
sla_end_date	Service Level Agreement End Date	The date on which an SLA expires or is no longer valid.
sla_id	Service Level Agreement ID	The unique name or other identifier for a Service Level Agreement CI.
sla_start_date	Service Level Agreement Start Date	The date on which a contract, document, service, or SLA becomes active.
sla_status	Service Level Agreement Status	An indication of the status of an Application, Contract, Document, Service, or SLA CI (development, review, active, retired, and so on).
sla_type	Service Level Agreement Type	A description of the kind of Application, Contract, Document, Service, or SLA CI.
sla_version	Service Level Agreement Version	A number or other identifier that indicates the current level (version) of an Application, Document, Service, or SLA CI.

Software Families

The Software families include the following:

Software.Application

Identifies programmatic components of the IT infrastructure.

Software.Application Server

Identifies a software engine that delivers client applications to client computers, typically through the Internet and using HTTP (Hypertext Transfer Protocol).

Software.Bespoke

Identifies software customized or constructed to order.

Software.COTS

Identifies software that was purchased, or leased and is manufactured outside of the owning company.

Software.Database

Identifies database management systems (DBMS) such as Oracle, DB2, and MS SQL.

Software.In-House

Identifies software applications developed by the company using the application.

Software.Operating System

Identifies system Software installed on a computer or similar device that provides basic services and enables other software to run.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name
Software.Application	Application	app_extx	ci_app_ext
Software.Application	Application Instance	app_extx	ci_app_ext
Software.Application Server	Application Server	app_extx	ci_app_ext
Software.Application Server	Application Server Instance	app_extx	ci_app_ext
Software.Bespoke	Bespoke	app_extx	ci_app_ext
Software.COTS	Batch	app_extx	ci_app_ext
Software.COTS	CICS	app_extx	ci_app_ext
Software.COTS	COTS	app_extx	ci_app_ext

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name
Software.COTS	Network Software	app_extx	ci_app_ext
Software.COTS	Security	app_extx	ci_app_ext
Software.COTS	STC	app_extx	ci_app_ext
Software.COTS	TSO	app_extx	ci_app_ext
Software.COTS	WebSphere MQ	app_extx	ci_app_ext
Software.Database	CA-Datacom	dat_basx	ci_database
Software.Database	CA-IDMS	dat_basx	ci_database
Software.Database	DB2	dat_basx	ci_database
Software.Database	IMS	dat_basx	ci_database
Software.Database	Ingres	dat_basx	ci_database
Software.Database	Oracle	dat_basx	ci_database
Software.Database	Other Software Database	dat_basx	ci_database
Software.Database	SQL	dat_basx	ci_database
Software.Database	Sybase	dat_basx	ci_database
Software.In-House	In-House	app_inhx	ci_app_inhouse
Software.Operating System	AIX OS	opsysx	ci_operating_system
Software.Operating System	HP UX OS	opsysx	ci_operating_system
Software.Operating System	Linux OS	opsysx	ci_operating_system
Software.Operating System	MVS OS	opsysx	ci_operating_system
Software.Operating System	OS/390 OS	opsysx	ci_operating_system
Software.Operating System	Other Software	opsysx	ci_operating_system
Software.Operating System	Sun OS	opsysx	ci_operating_system
Software.Operating System	Tandem OS	opsysx	ci_operating_system
Software.Operating System	Unisys OS	opsysx	ci_operating_system
Software.Operating System	UNIX OS	opsysx	ci_operating_system
Software.Operating System	Vax OS	opsysx	ci_operating_system
Software.Operating System	VM OS	opsysx	ci_operating_system
Software.Operating System	Windows OS	opsysx	ci_operating_system
Software.Operating System	z/OS OS	opsysx	ci_operating_system

Software Attributes

The following attributes correspond to the app_extx extension table and apply to the following families:

- Software.Application
- Software.Application Server
- Software.Bespoke
- Software.COTS

Object Name	Label	Description
app_id	Application ID	Application name or other unique identifier.
category	Category	The high-level type designation for an application.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on of a CI or group of CIs.
date_installed	Date Installed	The date on which the physical installation of a Configuration Item was completed.
environment	Environment	The application environment (for example, development, test, production) or project environment (for example, mainframe, distributed).
highavail_appl_resources	High Availability Resource	The name of the resource that provides high availability capability for an Application CI.
highly_avail	Under High Availability?	An indication (Yes/No) that an Application CI operates in a high availability production scenario.
inhouse_or_vendor	External Vendor	The internal department responsible for development/maintenance of this software.
install_dir	Installation Directory	The directory where an application stores its program files.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_end_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_start_date	Lease Effective Date	The date on which a lease begins.

Object Name	Label	Description
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific timeframe or was purchased.
main_process	Main Process	The designation of the main thread of an application process.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The timeframe for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
portfolio	Portfolio	A grouping of projects into a unit for management and tracking purposes.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amount c	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
response_time	Response Time	The desired time measurement between the time a transaction is entered and the application returns a response.
server	Server	The name of the server on which an application runs.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
storage_used	Storage Used	The amount of available storage that is in use.
support_end_date	Support End Date	The date on which support for an application is no longer provided.
support_start_date	Support Start Date	The beginning date on which support for an application is provided.
support_type	Support Type	The kind of support that is provided for this CI, for example, gold/silver/bronze.
type	Type	A description of the kind of Application, Contract, Document, Service, or SLA CI.
uptime	Uptime	The desired "availability" that indicates the proportion of time a component is in a fully functioning condition.
version	Version	A number or other identifier that indicates the current

Object Name	Label	Description
		level (version) of an Application, Document, Service, or SLA CI.

Software.Database Attributes

The Software.Database family includes the following attributes that correspond to the dat_basx extension table:

Object Name	Label	Description
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on of a CI or group of CIs.
db_id	Database ID	A name that uniquely identifies a database.
environment	Environment	The application environment (for example, development, test, production) or project environment (for example, mainframe, distributed).
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific timeframe or was purchased.
portfolio	Portfolio	A grouping of projects into a unit for management and tracking purposes.
priority	Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
server	Server	The name of the server on which an application runs.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
support_end_date	Support End Date	The date on which support for an application is no longer provided.
support_start_date	Support Start Date	The beginning date on which support for an application is provided.
support_type	Support Type	The kind of support that is provided for this CI, for example, gold/silver/bronze.
type	Type	A description of the kind of Application, Contract,

Object Name	Label	Description
		Document, Service, or SLA CI.
version	Version	A number or other identifier that indicates the current level (version) of an Application, Document, Service, or SLA CI.

Software.In-House Attributes

The Software.In-House family includes the following attributes that correspond to the app_inhx extension table:

Object Name	Label	Description
app_id	Application ID	Application name or other unique identifier.
category	Category	The high-level type designation for an application, service, SLA, or document.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
date_installed	Date Installed	The date on which the physical installation of a Configuration Item was completed.
environment	Environment	The application environment (for example, development, test, production) or project environment (for example, mainframe, distributed).
highavail_appl_resources	High Availability Resource	The name of the resource that provides high availability capability for an Application CI.
highly_avail	Under High Availability?	An indication (Yes/No) that an Application CI operates in a high availability production scenario.
inhouse_or_vendor	Inhouse Department	The internal department responsible for development/maintenance of this software.
install_dir	Installation Directory	The directory where an application stores its program files.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific timeframe or was purchased.
main_process	Main Process	The designation of the main thread of an application process.
portfolio	Portfolio	A grouping of projects into a unit for management and tracking purposes.
priority	Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.

Object Name	Label	Description
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amount c	Purchase Amount	The cost of a CI. **Note:** The purchase_amount attribute is deprecated.
response_time	Response Time	The desired time measurement between the time a transaction is entered and the application returns a response.
server	Server	The name of the server on which an application runs.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
storage_used	Storage Used	The amount of available storage that is in use.
support_end_date	Support End Date	The date on which support for an application is no longer provided.
support_start_dat e	Support Start Date	The beginning date on which support for an application is provided.
support_type	Support Type	The kind of support that is provided for this CI, for example, gold/silver/bronze.
type	Type	A description of the kind of Application, Contract, Document, Service, or SLA CI.
uptime	Uptime	The desired "availability", indicating the proportion of time a component is in a fully functioning condition.
version	Version	A number or other identifier that indicates the current level (version) of an Application, Document, Service, or SLA CI.

Software.Operating System Attributes

The Software.Operating System family includes the following attributes that correspond to the opsysx extension table:

Object Name	Label	Description
os_id	Operating System ID	Operating system name or other unique identifier.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on of a CI or group of CIs.

Object Name	Label	Description
date_installed	Date Installed	The date on which the physical installation of a Configuration Item was completed.
environment	Environment	The application environment (for example, development, test, production) or project environment (for example, mainframe, distributed).
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_end_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_start_date	Lease Effective Date	The date on which a lease begins.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific timeframe or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The timeframe for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
server	Server	The name of the server on which an application runs.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
support_end_date	Support End Date	The date on which support for an application is no longer provided.
support_start_date	Support Start Date	The beginning date on which support for an application is provided.

Object Name	Label	Description
support_type	Support Type	The kind of support that is provided for this CI, for example, gold/silver/bronze.
type	OS Type	A description of the kind of Application, Contract, Document, Service, or SLA CI.
version	Version	A number or other identifier that indicates the current level (version) of an Application, Document, Service, or SLA CI.

J2EE Conventions

CA CMDB includes the following families of Software CIs:

- Software.COTS extension: ci_app_ext
- Software.Application extension: ci_app_ext
- Software.Application Server extension: ci_app_ext
- Software.Bespoke extension: ci_app_ext
- Software.In-House extension: ci_app_inhouse
- Software.Database extension: ci_database
- Software.Operating System extension: ci_operating_system

The existing CA CMDB/CA Cohesion ACM integration uses the family Software.COTS for all software CIs including both J2EE applications and J2EE application servers. Software CIs are reconciled by their system_name attribute which is composed in the following format:

HostName|AppName|Version|Qualifier

In addition, these CIs are named using a similar format:

AppName|Version|Qualifier

Families, Classes, and Reconciliation for J2EE

The following reconciliation considerations apply if you use J2EE Application or J2EE Application Server CIs:

- If you have J2EE Application and Application Server CIs, and you do *not* have CA Wily products or other MDR sources for J2EE CIs, you can use your existing reconciliation strategy. CA Cohesion ACM provides an export capability that you can customize to behave in its original mode.

- If you intend to use CA Wily products, and you already have CIs discovered by CA Cohesion ACM, you can write a script to mark your existing J2EE CIs as Inactive. Then the CIs can be rediscovered using the new CA CMDB integrations.

For future integrations with CA CMDB, use the following Families, Classes, and reconciliation key for J2EE Application CIs:

Objects	Values
Family	Software.Application
Extension	ci_app_ext
Class	Application
Attributes	Category and Type **Note:** These attributes distinguish J2EE applications from other kinds of applications.
Reconciliation attributes/key	Name: AppName|Port system_name: HostName|AppName|Port

For future integrations with CA CMDB, use the following Families, Classes, and reconciliation key for J2EE Application Server CIs:

Objects	Values
Family	Software.Application Server
Extension	ci_app_ext
Class	Application Server
Attributes	Category and Type **Note:** These attributes distinguish J2EE applications from other kinds of applications.
Reconciliation attributes/key	Name: *Host*Name|Port system_name: HostName|Port

Storage Area Network (SAN) Families

The Storage Area Network (SAN) families include the following:

SAN.Interface

Identifies a fiber channel interface, similar to a network interface card, used in a SAN fabric.

SAN.Switch

Identifies a fiber channel switch, similar to a network switch, used in a SAN fabric.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name	Description
SAN.Interface	Interface	net_nicx	ci_network_nic	Interface to a SAN
SAN.Switch	Hub	net_hubx	ci_network_hub	Hub on a SAN
SAN.Switch	Switch	net_hubx	ci_network_hub	Switch on a SAN

SAN.Interface Attributes

The SAN.Interface family includes the following attributes that correspond to the net_nicx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
addr_class	Address Class	IP address values are arranged in Address Classes (A, B, and C). The Address Classes determine how many workstations can exist on the network.
gateway_id	Gateway ID	The unique identifier for a network point that acts as an entrance (gateway) to another network
ip_mgmt_addr	Management IP Address	The IP address assigned to a station (PC or workstation) that is authorized for either manager- or operator-level access to a switch.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.

Object Name	Label	Description
line_speed	Line Speed	The rate at which information is transmitted on a network connection.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
number_net_card	Number of Network Cards	The number of expansion cards that have been installed in the available slots in a computer.
number_net_port	Number of Network Ports	The total number of ports in use on a server.
number_net_port_conn	Number of Network Port Connections	The total number of ports on a server.
number_ports	Number of Ports	The total number of ports on a network device.
number_ports_used	Number of Ports Used	The total number of ports in use on a network device.
os_version	OS Version	The version number of a CI's operating system.
protocol	Protocol	The communication method employed by a network device.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
role	Role	The business function supported by a hardware or network device, for example, production, test.
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address, for example, 255.128.0.0.
technology	Technology	The technology (TCP/IP, Ethernet, FDDI, and so on) employed by a hardware or network device.
type_net_conn	Type of Network Connection	An indication of the kind of network connection used by a hardware or network device.

SAN.Switch Attributes

The SAN.Switch family includes the following attributes that correspond to the net_hubx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
addr_class	Address Class	IP address values are arranged in Address Classes (A, B, and C). The Address Classes determine how many workstations can exist on the network.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and son on, of a CI or group of CIs.
gateway_id	Gateway ID	The unique identifier for a network point that acts as an entrance (gateway) to another network
ip_mgmt_addr	Management IP Address	The IP address assigned to a station (PC or workstation) that is authorized for either manager- or operator-level access to a switch.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_effective_date	Lease Effective Date	The date on which a lease begins.
leased_or_owned_status	Leased or Owned	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.

Object Name	Label	Description
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
number_net_card	Number of Network Cards	The number of expansion cards that have been installed in the available slots in a computer.
number_net_port	Number of Network Ports	The total number of ports in use on a server.
number_net_port_conn	Number of Network Port Connections	The total number of ports on a server.
number_ports	Number of Ports	The total number of ports on a network device.
number_ports_used	Number of Ports Used	The total number of ports in use on a network device.
os_version	OS Version	The version number of a CI's operating system.
priority	Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
project code	Project Code	
protocol	Protocol	The communication method employed by a network device.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
role	Role	The business function supported by a hardware or network device, for example, production, test.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address, for example, 255.128.0.0.
technology	Technology	The technology (TCP/IP, Ethernet, FDDI, and so on) employed by a hardware or network device.
type_net_conn	Type of Network Connection	An indication of the kind of network connection used by a hardware or network device.

Telecom Families

The Telecom families include the following:

Telecom.Circuit

Identifies a dedicated connection between two nodes of a telecommunications network.

Telecom.Other

Identifies miscellaneous telecom components.

Telecom.Radio

Identifies an RF receiver or transmitter.

Telecom.Voice

Identifies a multiplexed connection supporting multiple voice lines on the same circuit.

Telecom.Wireless

Identifies telecom devices that do not rely on land lines, such as mobile or cellular phones, or wireless handsets or headsets.

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name
Telecom.Circuit	Communication Circuit	tel_cirx	ci_telcom_circuit
Telecom.Circuit	Other Telecom Circuit	tel_cirx	ci_telcom_circuit
Telecom.Circuit	Satellite Link	tel_cirx	ci_telcom_circuit
Telecom.Other	ACD	tel_othx	ci_telcom_other
Telecom.Other	IVR	tel_othx	ci_telcom_other
Telecom.Other	Other Telecom	tel_othx	ci_telcom_other
Telecom.Other	PDA	tel_othx	ci_telcom_other
Telecom.Other	Video Conferencing Unit	tel_othx	ci_telcom_other
Telecom.Radio	Other Telecom Radio	tel_radx	ci_telcom_radio
Telecom.Radio	Radio Data Modem	tel_radx	ci_telcom_radio
Telecom.Radio	Radio Handsets	tel_radx	ci_telcom_radio
Telecom.Voice	Centrex	tel_voix	ci_telcom_voice
Telecom.Voice	Conference Bridge Line	tel_voix	ci_telcom_voice

Family	Class	Extension Table / Logical Name	Extension Table / Physical Name
Telecom.Voice	Desk Phone	tel_voix	ci_telcom_voice
Telecom.Voice	Other Telecom Voice	tel_voix	ci_telcom_voice
Telecom.Voice	PBX	tel_voix	ci_telcom_voice
Telecom.Voice	Phone Card	tel_voix	ci_telcom_voice
Telecom.Wireless	Mobile Phone	tel_wirx	ci_telcom_wireless
Telecom.Wireless	Other Telecom Wireless	tel_wirx	ci_telcom_wireless
Telecom.Wireless	Pager	tel_wirx	ci_telcom_wireless

Telecom.Circuit Attributes

The Telecom.Circuit family includes the following attributes that correspond to the tel_cirx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
bandwidth	Bandwidth	The amount of data that can be carried in a given time period over a wired or wireless communications link. Usually specified as bits per second, KB per second, MB per second, and so on.
carrier	Carrier	A company that provides telecommunication services, such as AT&T, Cingular, Sprint, Verizon, and so on.
circuit_number	Circuit Number	The number issued by the phone company that uniquely identifies a circuit.
circuit_type	Circuit Type	The high-level type designation for a telecommunication circuit.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.

Object Name	Label	Description
lease_effective_date	Lease Effective Date	The date on which a lease begins.
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Ownedv	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.

Object Name	Label	Description
retire_date	Retire Date	The date on which a CI is no longer active.
server_id	Server ID	The name or other unique identifier for a server.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.

Telecom.Other Attributes

The Telecom.Other family includes the following attributes that correspond to the tel_othx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
bandwidth	Bandwidth	The amount of data that can be carried in a given time period over a wired or wireless communications link. Usually specified as bits per second, KB per second, MB per second, and so on.
bios_ver	BIOS Version	The version number of the BIOS - the code that's run when a personal computer starts up.
carrier	Carrier	A company that provides telecommunication services, such as AT&T, Cingular, Sprint, Verizon, and so on.
circuit_number	Circuit Number	The number issued by the phone company that uniquely identifies a circuit.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
cpu_type	CPU Type	The type (and speed) of the central processor in a telecom device.
domain	Domain	The identifier of the logical grouping (domain) to which a network or telecom device is assigned.
frequency	Frequency	The wavelength at which a telecom signal is transmitted to a wireless or radio device.

Object Name	Label	Description
gateway_id	Gateway ID	The unique identifier for a network point that acts as an entrance (gateway) to another network
harddrive_capacity	Hard Drive Capacity	The amount of hard drive capacity that is available for use on a Telecom CI.
harddrive_used	Hard Drive Space Used	The amount of hard drive capacity that is being used.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease begins.
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Ownedv	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
license_expiration_date	License Expiration Date	The date on which a hardware or software license expires.
ci_license_number	CI License Number	The valid license number for a hardware or software CI.
line_id	Line ID	The designation that uniquely identifies a telecommunication line.
main_extension	Main Extension	The primary telephone number for a business.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.

Object Name	Label	Description
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
memory_available	Memory Available	The amount of memory that is still available for use.
memory_used	Memory Used	The amount of the available memory that is in use.
monitor	Monitor Model	The type of display unit connected to a hardware, network, or telecom device.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
nic_card	NIC Card	Each device (Node) on a network has a Network Interface Card (NIC). The NIC can be Ethernet, Token Ring, RF, or other. The NIC is installed inside the device and provides a real-time dedicated connection to the network.
phone_number	Phone Number	The number issued by the phone company that uniquely identifies a land line or cellular telephone connection.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.

Object Name	Label	Description
retire_date	Retire Date	The date on which a CI is no longer active.
server_id	Server ID	The name or other unique identifier for a server.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address for example, 255.128.0.0.

Telecom.Wireless Attributes

The Telecom.Wireless family includes the following attributes that correspond to the tel_wirx extension table:

Object Name	Label	Description
active_date	Activation Date	The date on which the CI was put into active status.
bandwidth	Bandwidth	The amount of data that can be carried in a given time period over a wired or wireless communications link. Usually specified as bits per second, KB per second, MB per second, and so on.
bios_ver	BIOS Version	The version number of the BIOS - the code that's run when a personal computer starts up.
carrier	Carrier	A company that provides telecommunication services, such as AT&T, Cingular, Sprint, Verizon, and so on.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
cpu_type	CPU Type	The type (and speed) of the central processor in a telecom device.
domain	Domain	The identifier of the logical grouping (domain) to which a network or telecom device is assigned.
frequency	Frequency	The wavelength at which a telecom signal is transmitted to a wireless or radio device.

Object Name	Label	Description
gateway_id	Gateway ID	The unique identifier for a network point that acts as an entrance (gateway) to another network
harddrive_capacity	Hard Drive Capacity	The amount of hard drive capacity that is available for use on a Telecom CI.
harddrive_used	Hard Drive Space Used	The amount of hard drive capacity that is being used.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease begins.
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Ownedv	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
license_expiration_date	License Expiration Date	The date on which a hardware or software license expires.
ci_license_number	CI License Number	The valid license number for a hardware or software CI.
line_id	Line ID	The designation that uniquely identifies a telecommunication line.
main_extension	Main Extension	The primary telephone number for a business.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.

Object Name	Label	Description
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
memory_available	Memory Available	The amount of memory that is still available for use.
memory_used	Memory Used	The amount of the available memory that is in use.
monitor	Monitor Model	The type of display unit connected to a hardware, network, or telecom device.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
nic_card	NIC Card	Each device (Node) on a network has a Network Interface Card (NIC). The NIC can be Ethernet, Token Ring, RF, or other. The NIC is installed inside the device and provides a real-time dedicated connection to the network.
phone_number	Phone Number	The number issued by the phone company that uniquely identifies a land line or cellular telephone connection.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.

Object Name	Label	Description
retire_date	Retire Date	The date on which a CI is no longer active.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address for example, 255.128.0.0.

Telecom.Radio Attributes

The Telecom.Radio family includes the following attributes that correspond to the tel_radx extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
bandwidth	Bandwidth	The amount of data that can be carried in a given time period over a wired or wireless communications link. Usually specified as bits per second, KB per second, MB per second, and so on.
bios_ver	BIOS Version	The version number of the BIOS - the code that's run when a personal computer starts up.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
cpu_type	CPU Type	The type (and speed) of the central processor in a telecom device.
domain	Domain	The identifier of the logical grouping (domain) to which a network or telecom device is assigned.
frequency	Frequency	The wavelength at which a telecom signal is transmitted to a wireless or radio device.
gateway_id	Gateway ID	The unique identifier for a network point that acts as an entrance (gateway) to another network

Object Name	Label	Description
harddrive_capacity	Hard Drive Capacity	The amount of hard drive capacity that is available for use on a Telecom CI.
harddrive_used	Hard Drive Space Used	The amount of hard drive capacity that is being used.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease begins.
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Ownedv	An indication of whether a particular CI has been leased for a specific time frame or was purchased.
license_expiration_date	License Expiration Date	The date on which a hardware or software license expires.
ci_license_number	CI License Number	The valid license number for a hardware or software CI.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
memory_available	Memory Available	The amount of memory that is still available for use.
memory_used	Memory Used	The amount of the available memory that is in use.

Object Name	Label	Description
monitor	Monitor Model	The type of display unit connected to a hardware, network, or telecom device.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
nic_card	NIC Card	Each device (Node) on a network has a Network Interface Card (NIC). The NIC can be Ethernet, Token Ring, RF, or other. The NIC is installed inside the device and provides a real-time dedicated connection to the network.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.
subnet_mask	Subnet Mask	The identifier of the subnet into which a CI falls. Expressed in the same format as an IP address for example, 255.128.0.0.

Telecom.Voice Attributes

The Telecom.Voice family includes the following attributes that correspond to the tel_voix extension table:

Object Name	Label	Description
active_date	Active Date	The date on which the CI was put into active status.
carrier	Carrier	A company that provides telecommunication services, such as AT&T, Cingular, Sprint, Verizon, and so on.
circuit_number	Circuit Number	The number issued by the phone company that uniquely identifies a circuit.
contract_number	Contract Number	The unique identifier for a legal contract covering the purchase, lease, warranty, maintenance, and so on, of a CI or group of CIs.
cpu_type	CPU Type	The type (and speed) of the central processor in a telecom device.
harddrive_capacity	Hard Drive Capacity	The amount of hard drive capacity that is available for use on a Telecom CI.
harddrive_used	Hard Drive Space Used	The amount of hard drive capacity that is being used.
last_mtce_date	Last Maintenance Date	The latest date on which maintenance was performed on a CI.
lease_cost_per_month	Monthly Lease Cost	The dollar amount owed to the vendor each month for a lease.
lease_effective_date	Lease Effective Date	The date on which a lease begins.
lease_renewal_date	Lease Renewal Date	The date on which a lease must be renewed for the next time period, or the affected CIs must be returned to the vendor.
lease_termination_date	Lease Termination Date	The date on which a lease ends and the affected CIs must be returned to the vendor.
leased_or_owned_status	Leased or Ownedv	An indication of whether a particular CI has been leased for a specific time frame or was purchased.

Object Name	Label	Description
main_extension	Main Extension	The primary telephone number for a business.
maintenance_fee	Maintenance Fee	The amount of money paid to cover the cost of maintenance services over a specified time period.
maintenance_period	Maintenance Period	The time frame for which a maintenance contract is active.
memory_available	Memory Available	The amount of memory that is still available for use.
memory_used	Memory Used	The amount of the available memory that is in use.
monitor	Monitor Model	The type of display unit connected to a hardware, network, or telecom device.
mtce_contract_number	Maintenance Contract Number	The number that uniquely identifies a maintenance contract.
mtce_level	Maintenance Level	An indication of the current patch version for this CI.
mtce_type	Maintenance Type	The kind of maintenance that is provided for this CI, for example, vendor or in-house.
network_address	Network Address	The IP address at which this CI resides, for example, 192.168.0.4.
network_name	Network Name	The unique name or identifier for a communications system that connects two or more computers and their peripheral devices.
nic_card	NIC Card	Each device (Node) on a network has a Network Interface Card (NIC). The NIC can be Ethernet, Token Ring, RF, or other. The NIC is installed inside the device and provides a real-time dedicated connection to the network.
phone_number	Phone Number	The number issued by the phone company that uniquely identifies a land line or cellular telephone connection.
ci_priority	CI Priority	The service level designation that is assigned to indicate the priority for restoration of this CI.

Object Name	Label	Description
proj_code	Project Code	The ID or other unique identifier for the project to which a CI is assigned.
purchase_amountc	Purchase Amount	The cost incurred to buy a CI. **Note:** The purchase_amount attribute is deprecated.
retire_date	Retire Date	The date on which a CI is no longer active.
SLA	Service Level Agreement	The name or identifier of the contract between IT and the customer that governs the level of service and support options that are expected and acceptable for this IT component.

Chapter 3: General Resource Loader (GRLoader)

This section contains the following topics:

GRLoader Considerations

Review the following considerations before you use GRLoader:

- GRLoader r12.5 is compatible with earlier releases of CA CMDB, but early releases of GRLoader are incompatible with CA CMDB r12.5. For example, a site has an existing CA CMDB r11.2 installation and later installs CA CMDB r12.5, so the site has two installations. GRLoader r12.5 works with both installed systems, but GRLoader r11.2 only works with the r11.2 installation. You can use the –s parameter to specify which one of the multiple installations for GRloader to use.
- We recommend that you migrate all your MDR scripts to use the latest version of GRLoader. Migration requires altering existing scripts to specify -n if you want to insert new CIs.
- If you do not specify -n or -a, GRLoader does not insert or update CIs and relationships.
- You can specify GRLoader options in a configuration file.
- Whenever a CI is updated by using the -a option, Last Change Date and user displayed in the Configuration Item List are updated even if no attributes were changed. This update occurs whether a CI was edited in the user interface (and saved without changes) or updated by using GRLoader.
- CI information is recorded to the error log whenever GRLoader generates a warning, an error, or a skip. For example, when GRLoader loads CIs, but -a is not specified to allow updates, the information appears in the error log with an appropriate message.

The GRLoader Command

The General Resource Loader (GRLoader) imports CI information into the CMDB. GRLoader uses XML documents as input; this lets you import data that originates in different data sources. You can run GRLoader from a command prompt or by using a .bat or .cmd file. GRLoader is added to the path during installation, so it can run from any directory.

Results from an import show counts for all CIs and Relationships processed, including the number of Read, Skipped, Inserts, Updates, Errors and Warnings. All processing details and errors are logged in the *nx_root*/log/grloader.log file, where *nx_root* specifies the CA CMDB server installation directory.

Syntax

```
C:\WINDOWS>GRLoader -?
```

The GRLoader command uses the following parameters:

-u *userid*

(Required) Specifies the user ID that runs the GRLoader process.

-p *password*

(Required) Specifies the password for the user ID. If GRLoader is run without the -p parameter, it prompts the console for the password.

-s http[s]://*cmdb_servername*:*port*

(Required) Specifies the server URL including the port number that is running the web services. For running GRLoader on the primary server in a default installation, you can use the following command:

```
-s http://localhost:8080
```

Note: This parameter is ignored if you specify the optional -C parameter.

-i *XML_input_file*

(Required) Specifies a full path name or a relative path name.

Note: ADT creates input to GRLoader, by default, in the following directory:

nx_root/CMDB/cmdb/data/userdata

nx_root specifies the CA CMDB Server installation directory.

-n

(Optional) Allows new CIs to be inserted into the CMDB. Without -n, CIs are written to the XML error file (see the -e parameter). Relationships are only added if either -n or -a is specified. If neither is specified, no updates are performed. The -a parameter also is required to update CIs.

-a

(Optional) Allows updates to configuration items (by default, updates are not allowed if the CI exists in the CMDB). The -n flag also is required to add new CIs.

-D

(Optional) Specifies a name prefix for relations (defaults to "GRLoader"). The prefix is used for the sym field in new relationships. The sym file must be unique, so a datetime field and a number is appended to this prefix to make it unique. The default prefix is "GRLoader".

-e *XML_err_file*

(Optional) Produces an XML error file when errors or warnings are detected. By default, the error file name is the name of the XML input file with "_err.xml" appended to it. For example, if the input file is abc.xml, the error file is abc_err.xml. Use the -e parameter to override this default name.

-E

(Optional) Permits overwriting an XML error file. By default, the error file cannot be overwritten.

-I

(Optional) Ignores case. When this parameter is used, GRLoader is not case-sensitive when comparing the input value of a lookup field with the actual value stored in the database. By default, lookups are case-sensitive.

-lftwa [-chg *nnnn*]

(Optional) Loads TWA transactions into the CMDB. If used with -chg, the load selects only those transactions associated with change order *nnnn*.

Note: The Change Order string is not validated when loaded into the CMDB.

-lftwai [-chg *nnnn*]

(Optional) Runs TWA transactions to update the CMDB. Transactions that run successfully are set to Inactive so that they do not appear in lists. If -chg is used, the load selects only those transactions associated with change order *nnnn*.

-lttwa

(Optional) Loads XML into the transaction work area (TWA) instead of directly into the CMDB. After data has been loaded into the TWA, it can be edited, changed and verified. After the data modification process is complete, individual transactions can be loaded into the CMDB (see –lftwa).

-lttwar

(Optional) Loads XML into the initial state in the transaction work area (TWA) instead of directly into the CMDB. Transaction data in the TWA can be edited, changed, and verified (see -simci and -simrel). After the data modification process is complete, individual transactions can be loaded into the CMDB (see –lftwai).

-nospinner (-spinner)

(Optional) Turns off the spinner that displays CI and relationship progress. -spinner turns it on again.

-P

(Optional) Specifies Preload data to improve performance for large processing. For large input files, supplying the –P parameter preloads a few tables into memory so that they can be processed more quickly. For smaller inputs (< 50 entries), preload is not necessary.

-rs

(Optional) Replaces symbolic values that are included in the XML input file. If this parameter is enabled, the following symbolic values are replaced by their corresponding values:

now is replaced by a unique date/time string appended with a sequence number to ensure uniqueness.

userid is the userid specified in the -u parameter.

inputfile is the filename specified in the -I parameter.

relationcount is the number of relationships processed so far in this GRLoader run.

lastciuuid is the uuid of the most recently processed CI.

cicount is the number of CIs processed so far in this GRLoader run.

Examples: Use the -rs Parameter

With "-rs" enabled, the following example creates 100 CIs named ci1, ci2, …, ci100

```
<GRLoader>
<ci><name>ci*cicount*</name><class>Server</class></ci>
[...repeated 100 times...]
</GRLoader>
```

With -rs enabled, the following example updates the CI description with information about the most recent update.

```
<GRLoader>
<ci>
<name>server1</name>
<description>updated by *userid* on *now* using input file *inputfile*</description>
</ci>
</GRLoader>
```

-simci

(Optional) Simulates CI operations to predetermine whether a set of transactions creates CIs and therefore possible ambiguities for other CIs.

-simrel

(Optional) Simulates relationship operations to predetermine whether a relationship transaction creates a relationship or updates a relationship.

-T *trace_level*

(Optional) Specifies the tracing level. Known tracing levels are 0 (off, the default), 1 (low), 5 (medium) and 10 (verbose). We recommend only using this setting when necessary because much output can result.

-tf *filename*

(Optional) Runs GRLoader using translation rules. *filename* is the name of the file that contains the translation rule set.

-slump

(Optional) Specifies the slump.jar file. This parameter can provide better performance than web services. **Important:** -slump only can be used with the -s parameter to target a primary server.

Note: If another CA product is installed (for example, CA Cohesion ACM) or a CA CMDB service pack is installed, verify that the slump.jar file is identical to the one that is installed on the target CA CMDB system.

-C

(Optional) Validates the XML input file without any additional processing. Only validates the XML tags, not field values.

-h (or -?)

(Optional) Displays online help.

-v

(Optional) Displays the GRLoader product version and build date.

-maxerror *number*

(Optional) Specifies the maximum number of errors that can occur before remaining CIs or relationships are skipped.

-maxwarn *number*

(Optional) Specifies the maximum number of warnings that can occur before remaining CIs or relationships are skipped.

-chg *nnnn*

Used with –lftwa and -lftwar. Loads only those transactions associated with change order *nnnn*.

Note: The Change Order string is not validated when loaded into the CMDB.

-cfg *myconfigfile*.cfg

(Optional) Specifies the name of the input configuration file.

-dt t*enant*

(Optional) Specifies the tenant assignment for the CI/relationship. Multi-tenancy must be turned on to use this parameter. You can use PUBLIC to indicate that the object is public. If the user's tenant access is not authorized to create public objects, the object is created using the default tenant.

Note: For more information about tenant access, see the *Administration Guide*.

Example: Load CI and Relationship Data

The following example loads the CI and relationship data contained in the file hardware_servers.xml, (in the current directory) into the CMDB that resides on the server located on the local computer on port 8080.

grloader -u CMDBAdmin -p password -s http://localhost:8080 -i hardware_servers.xml -n

XML Input

When the source of your CI data is in a database or an XML document, ADT is used to map the columns in the ODBC database to XML, which can then be processed by GRLoader. If you create your XML data from another source (bypassing ADT) it is helpful to have a set of sample XML entries that can be used as templates for the creation of the CI and relationship data.

The following directory contains a set of XML files that include only XML tags and no data, which you can use to create your own input data.
nx_root\cmdb\data\federationAdapters\templates\

nxroot defaults to c:\program files\ca\CA CMDB for a standard installation, and c:\program files\ca\servicedesk for an integrated installation.

Whether the XML document was created by ADT, it should be formatted similar to this annotated example:

XML Document	Notes
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?> <GRLoader>	These headers are required.
<ci>	Include zero or more <ci> nodes to define the CIs.
<name>*value*</name> <mac_address>*value*</mac_address> <dns_name>*value*</dns_name> <asset_num>*value*</asset_num> <serial_number>*value*</serial_number> <system_name>*value*</system_name>	These six characteristics uniquely identify a CI in a CI or Relations definition. At least one must be specified.
<class>*value*</class> <family>*value*</family> <manufacturer>*value*</manufacturer> <model>*value*</model>	These four values determine the class and family of a CI. Either (class) or (manufacturer/model) should be specified.
<mem_capacity>*value*</mem_capacity> <number_net_card>*value* </number_net_card> <phys_mem>*value*</phys_mem_update > <proc_speed>*value*</proc_speed> <proc_type>*value*</proc_type> <server_type>*value*</server_type> </ci>	Family-specific values. Consult the ADT templates for a description of valid node names. Zero or more family-specific values can be provided when defining a CI.
<relation> <type>*relation_type*</type>	Include zero or more <relation> nodes to define relationships. Specify the relationship type.
<provider> <name>value</name> <mac_address>value</mac_address> <dns_name>value</dns_name> <asset_num>value</asset_num> <serial_number>value</serial_number> </provider>	Identify the provider CI with at least one attribute.
<dependent> <name>value</name> <mac_address>value</mac_address> <dns_name>value</dns_name> <asset_num>value</asset_num> <serial_number>value</serial_number> </dependent> </relation>	Identify the dependent CI with at least one attribute.

```
</GRLoader>
```

Example: XML Input

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<GRLoader>
        <ci>
                <name>Host1</name>
                <class>Server</class>
        </ci>
        <ci>
                <name>Host2</name>
                <class>Server</class>
        </ci>
        <relation>
                <type>connects to</type>
                <provider>
                        <name>host1</name>
                </provider>
                <dependent>
                        <name>host2</name>
                </dependent>
        </relation>
</GRLoader>
```

MAC Address Normalization

Previous releases of GRLoader normalized the MAC address of CIs by removing the delimiters ":" and "-" from the MAC address. Thus, a MAC address of: aa:bb:cc:dd:ee was stored in CA CMDB as aabbccddee.

Consider the following MAC address behavior:

- The default is no MAC address normalization.
- CIs created with no normalization in CA CMDB reconcile with CIs that were created without normalization in CA CMDB r11.x.
- Invalid MAC addresses are treated as simple strings and are stored unmodified.

The following GRLoader parameters let you enable or disable MAC normalization:

-mn

Removes the delimiters ":" and "-" from MAC addresses (MAC normalization).

-nomn

Does not remove the delimiters ":" and "-" from MAC addresses.

Important! When an earlier CA CMDB version is installed, MAC address normalization is enabled automatically. You can override normalization by using the -nomn parameter

Because options are processed sequentially on the command line, the order of the options is important in the syntax.

Error Handling

If errors are found during the GRLoader process, the failing CI or Relation node is written to the error file. We recommend that you edit the XML file to correct the problem, and then run GRLoader against the edited file.

The -e parameter permits you to name your error file. The -maxerror and -maxwarn parameters let you specify the maximum number of errors or warnings that can occur, respectively, before remaining CIs or relationships are skipped.

GRLoader Configuration File

You can specify GRLoader options in a configuration file. This approach has the following advantages:

- Passwords are no longer entered on the command line.
- Passwords are not visible in the command prompt window (Windows) or in the results of the -ps command (UNIX).
- Standardized commands reduce errors.

The format of the configuration file parameter is as follows:

-cfg *myconfigfile*.cfg

Specifies the name of the input configuration file. You can specify the -cfg parameter anyplace in the GRLoader parameter string.

If the command line and the configuration file conflict, the last value entered is the one that is used.

Example: Specify a Configuration File

A configuration file command is used with the following syntax:

```
GRLoader -cfg myconfigfile.cfg -i myinputfile.xml
```

Instead of specifying the more complex command:

```
GRLoader -u servicedesk -p password -i myinputfile.xml -a -n -E -maxerror 10 -maxwarn 10 -dt IBM -nomn
```

Example: Last Password Value is Used

The configuration file GRLoader.cfg specifies the following passwords:

```
GRLoader.password=password1
GRLoader.password=password2
```

and the command line specifies the following password:

```
GRLoader -p password3 -cfg GRLoader.cfg
```

The password that is used is password2.

If the command line was changed to specify:

```
GRLoader -cfg GRLoader.cfg -p password3
```

The password that is used is password3 because it was the last one specified.

Configuration File Options

The following table lists the GRLoader options that you can use in the configuration file and the corresponding command line options.

boolean

Specifies a value from one the following pairs: 1/0, YES/NO, or TRUE/FALSE.

GRLoader Option	Command Line Option
grloader.userid=*userid*	-u
grloader.password=*password*	-p
grloader.server=*server*	-s
grloader.inputfile=*name*	-i
grloader.errorfile=*name*	-e
grloader.nxroot=*name*	-N

GRLoader Option	Command Line Option
grloader.casesensitive=boolean	-I
grloader.loadfromtwa=yes	-lftwa [-chg *nnnn*]
grloader.loadfromtwa.inactivatesuccessful=yes	-lftwai [-chg *nnnn*]
grloader.loadtotwa=yes	-lttwa
grloader.loadtotwa.ready=yes	-lttwar
grloader.simulateloadci=boolean	-simci
grloader.simulateloadrelation=boolean	-simrel
grloader.emptyvalue=EMPTY	
grloader.workarea.delimiters={ }	
grloader.workarea.ignore_transaction_dates=yes	
grloader.normalizemac=boolean	-nm/nonm
grloader.maxerror=*number*	-maxerror
grloader.maxwarn=*number*	-maxwarn
grloader.defaulttenant= *tenant* | PUBLIC	-dt *tenant* | PUBLIC **Note:** The multi-tenancy option must be setup or on to use these options.
grloader.allowupdate=boolean	-a
grloader.allowinsert=boolean	-n
grloader.overwriteerrorxml=boolean	-E
grloader.slump=boolean	-slump (primary server only)
grloader.preload=boolean	-P
grloader.replacesymbols=boolean	-rs
grloader.translationfile=*filename*	-tf
grloader.tracelevel=number	-T
grloader.spinner=boolean	-spinner/-no (equivalent to -nospinner)
grloader.cmdbversion=11.0	(no equivalent)*

*Required for CA CMDB r11.0 only. GRLoader is compatible with all later releases.

GRLoader XML

GRLoader requires XML document input that consists of a document header followed by enclosing <GRLoader> XML elements tags with one or more <ci> tags (for CI definitions) or <relation> tags (for relationships).

Specify the XML document header as follows:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
```

Update the encoding attribute as needed to handle the appropriate character encoding requirements. For example, specify "ISO-8859-1" to handle special Norwegian characters.

Example: Format a GRLoader XML File

The following template presents the format for a GRLoader XML file:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<GRLoader>

<ci>
[define a CI: common and family-specific attributes, versioning, reconciliation, MDR]
</ci>
[repeat as necessary for each CI]

<relation>
    <type>relationship_type</type>
    <delete_flag>active_state</delete_flag>
    <provider>
        <name>resource name</name>
        <serial_number>serial number</serial_number>
        <system_name>host name</system_name>
        <asset_num>resource tag</asset_num>
        <mac_address>mac address</mac_address>
        <dns_name>dns name</dns_name>
        <id>ci_uuid</id>
    </provider>
    <dependent>
```

```
            <name>resource name</name>
            <serial_number>serial number</serial_number>
            <system_name>host name</system_name>
            <asset_num>resource tag</asset_num>
            <mac_address>mac address</mac_address>
            <dns_name>dns name</dns_name>
            <id>ci_uuid</id>
        </dependent>
</relation>
[repeat as necessary for each relationship]
</GRLoader>
```

XML Content: The CI Tag

GRLoader uses the CI XML definition to load a CIs attribute values and relationships. The CI definition must include a minimum set of required attributes to be created or updated by using <ci> XML element tags.

You define the XML for a CI by specifying values for the following attributes:

- Class identification (required)
- Reconciliation attributes (required)
- Common attributes
- Family-specific attributes
- MDR identification attributes
- Versioning attributes

The CI Tag: Family and Class Identification

Class identification must be specified for each CI to associate the proper family and class with the CI.

Specify the family and class attributes using the following XML tags:

<family>

(Optional) Specifies a collection of CIs that have similar attributes.

<class>

(Required) Specifies a subset of CIs within a family.

Note: If GRLoader cannot find family or class, the CI is not created or updated.

Example: Identify a CI by Family and Class

The following example shows a CI named ServerCI that is identified by the family Hardware.Server and class Windows.

```
<ci>
    <name>ServerCI</name>
    <family>Hardware.Server</family>
    <class>Windows</class>
…
</ci>
```

The CI Tag: Reconciliation Attributes (Required)

One or more reconciliation attributes are required when creating, updating, or referencing a CI. GRLoader uses these attributes to uniquely identify the CI to be created or updated. Reconciliation attributes are also used to identify a provider/dependent relationship between two CIs.

Specify the reconciliation attributes using the following XML element tags:

- <name>—The name of the CI or resource (required when creating the CI for first time)
- <serial_number>—The manufacture unique identifier
- <asset_num>—Alternate resource identifier, for example, an alternate ID located on sticker placed on computer
- <system_name>—Computer name (hardware only)
- <dns_name>—The name by which this device is known in the domain name server
- <mac_address>—MAC address. (hardware only)
- <id>—UUID of the CI, used for direct updates when ID is known

The name attribute is required when creating a CI for the first time. If GRLoader cannot resolve the specified reconciliation attributes, an existing CI is not updated. Reconciliation attributes are special purpose Common Attributes that are used for identification purposes.

Example: Identify a CI When Creating or Updating It

In the following example, the CI definition uses name, serial_number, dns_name, mac_address and system_name to uniquely identify the CI when creating or updating it.

```
<ci>
   <name>ServerCI</name>
   <serial_number>HMVV081</serial_number>
   <dns_name>serverci.myco.com</dns_name>
   <mac_address>00:12:3F:48:F0:95</mac_address>
   <system_name>ServerCI</system_name>
…
</ci>
```

More information:

CI Reconciliation Attributes (see page 167)

The CI Tag: Common Attributes

In general, common attributes are attributes that can be used in any CA CMDB family or class. The XML element tag used for the attribute is the same as the attribute object name. The attribute value depends on its type, which can be a constant or an SREL value that indicates a foreign key reference to another table.

Example: Specify Common Attributes

In the following example, the CI definition named ServerCI specifies the following common attributes: manufacturer, model, and alarm_id (IP Address). The ServerCI name is also a common attribute.

```
<ci>
   <name>ServerCI</name>
…
   <manufacturer>Dell Inc.</manufacturer>
   <model>OptiPlex GX280</model>
   <alarm_id>130.200.19.220</alarm_id>
…
</ci>
```

More information:

Common Attributes (see page 11)
Contact and Other Lookup Fields (see page 148)
Fields Validated Against Data in Existing Tables (SREL) (see page 148)

The CI Tag: Family-Specific Attributes

Class attributes are unique to a specific CI family or class. The XML element tag used for the class attribute is the same as the attribute object name found in the family/class specific tables.

Example: Specify Family-Specific Attributes

In the following example, the CI definition named ServerCI specifies the attributes specific to the Hardware.Server family that include bios_ver, cd_rom_type, hard_drive_capacity, and so on.

```
<ci>
   <name>ServerCI</name>
…
   <bios_ver>A04</bios_ver>
   <cd_rom_type>DVD+-RW DVD8701</cd_rom_type>
   <hard_drive_capacity>90 MB</hard_drive_capacity>
   <number_net_card>3</number_net_card>
   <number_proc_inst>1</number_proc_inst>
   <phys_mem>2048 MB</phys_mem>
   <proc_speed>2793 MHz</proc_speed>
  <swap_size>4959 MB</swap_size>
…
</ci>
```

The CI Tag: MDR Identification

A management data repository (MDR) identifies the data provider for a CI and how the CI is mapped back to the corresponding MDR.

CA CMDB uses MDR information to do the following:

- Launch in context from the CI log directly to the MDR data provider.
- Track CI attribute changes back to the source MDR.
- Detect when a CI attribute is updated by more than one MDR. This situation occurs when multiple MDRs contribute data independently to a CI definition.
- Identifies which MDR is acting as the authoritative source.

Note: For more information about MDRs, see the *Implementation Guide* and the *Administration Guide*.

Use the following XML element tags to specify MDR attributes:

<mdr_class>

Specifies the MDR class to group MDRs that are processed similarly by CA CMDB.

<mdr_name>

Specifies the MDR name that an MDR uses to reference itself. Verify that the mdr_name and mdr_class value combination is unique within your enterprise.

<federated_asset_id>

Specifies the Federated asset ID that is an MDR's unique identifier for a CI.

If GRLoader cannot resolve the specified mdr_class and mdr_name to an existing MDR, the CI is not imported. A CI that has no federated_asset_id mapping associated with it is not federated.

Note: For more information about federation using GRLoader, see the *Implementation Guide*.

Example: Identify a CI in the MDR

In the following example, the CI definition named ServerCI specifies mdr_class and mdr_name to uniquely identify the MDR and federated asset id, and thus identify the CI in the MDR.

Note: The mdr_class string value "Cohesion" is used when federating data from the CA Cohesion ACM product.

```
<ci>
   <name>ServerCI</name>
…
   <federated_asset_id>1001118</federated_asset_id>
   <mdr_class>Cohesion</mdr_class>
   <mdr_name>CohesionServer</mdr_name>
…
</ci>
```

The CI Tag: Versioning Attributes

You can use GRLoader to set versioning attributes for a CI.

Note: For more information about versioning, see the *Administration Guide*.

Specify the Versioning attributes using the following XML element tags:

<milestone>

Specifies the label associated with that milestone that is displayed in the CMDB Versioning tab.

<standard_ci>

Specifies the name of the standard CI to be use for baseline comparisons in the CMDB Versioning tab.

The CI that is specified for the standard_ci attribute must already exist in the CMDB or be specified before the CI definition in the XML file is specified. The milestone generated records the state of the CI at the time that GRLoader is executed.

Example: Specify Baseline Comparisons

In the following example, the CI definition named ServerCI specifies the standard CI named standard server config for baseline comparisons with ServerCI (the focal CI). This example assumes that the standard CI already exists in CA CMDB. In addition, a milestone named Fiscal year end 2008 is also created to preserve the state of the CI at the time that the XML file is imported using GRLoader.

```
<ci>
   <name>ServerCI</name>
   <class>Server</class>
   <standard_ci>standard server config</standard_ci>
   <milestone>Fiscal year end 2008</milestone>
…
</ci>
```

XML Content: The Relation Tag

GRLoader can create or update relationships between configuration items by using the <relation> XML element tag. Relationships are many-to-many, and the relationship type specifies how two provider/dependent configuration items relate to one another in CA CMDB.

Specify the relation attributes using the following XML element tags:

<type>

(Optional) Specifies the name of the relationship type.

<delete_flag>

Designates a relationship as inactive or active. Specify 1 (one), yes, or true to make the relationship inactive. Specify 0 (zero), no or false to make the relationship active again. Setting the delete_flag to true leaves the existing relationship intact but marks it as inactive.

Note: For more information about deleting a relationship by using GRLoader, see the *Administration Guide*.

<provider>

(Required) Identifies the provider CI for the relationship, which contains one or more of the CI reconciliation attributes.

<dependent>

(Required) Identifies the dependent CI for the relationship, which contains one or more of the CI reconciliation attributes.

Note: If GRLoader cannot find a specified type, provider CI, or dependent CI, the relationship is created or updated.

Example: Define a Relationship Between CIs

The following example defines a relationship between the CIs named ServerCI (provider) and ServerCI|NetworkAdaptor-0 (dependent). The relationship type is contains. The example assumes that both CIs have already been defined in the CA CMDB or are specified preceding the relationship definition in an XML file. In addition, both the provider and dependent CIs must match all reconciliation attributes for the relationship to be created.

```
<relation>
  <type>contains</type>

  <provider>
    <name>ServerCI</name>
    <serial_number>HMVV081</serial_number>
    <dns_name>serverci.myco.com</dns_name>
    <mac_address>00:12:3F:48:F0:95</mac_address>
    <system_name>ServerCi</system_name>
  </provider>
  <dependent>
    <name>ServerCI|NetworkAdaptor-0</name>
  </dependent>
</relation>
```

More information:

Relationship Types (see page 15)
CI Reconciliation Attributes (see page 167)

XML Content: Special Values

Special-purpose XML attributes can modify how a CI value is set or updated when imported by GRLoader. You can use these attributes to perform special processing or formatting when setting the value; for example, to format a date value or use the result of a lookup.

Examples of special XML values include the following ones:

lookup

Specifies a CI by an attribute other than combo_name (lastname, firstname, middle). Examples include: userid,

update_if_null

Specifies the update_if_null option for GRLoader to use to distinguish between values that are blank and those which are not supplied in the XML. By default, update_if_null is set to "", which means that blank or missing values are ignored by GRLoader.

The following attribute descriptions for serial number are equivalent:

```
<serial_number></serial_number>
<serial_number/>
<serial_number update_if_null="">
```

If you want to remove the serial number from a CI that has one, the previous XML does *not* work, because GRLoader ignores blank or missing values. Instead, code xml for the serial number as follows:

```
<serial_number update_if_null="true"></serial_number>
```

This syntax always updates the attribute, even if the value is blank or missing.

dateformat=[utc | localtime]

Sets the *dateformat* attribute for the date field to be either "utc" or "localtime". Required when the format of the date is in UNIX Time Code (UTC) format. If dateformat is not set, the default is "localtime".

Date Formats

CA CMDB supports the following localtime date formats:

- yyyy.mm.dd
- yyyy.mm.dd hh:mm:ss

If the value does not match either of these formats, the parser tries to resolve the date as a UTC time. If the date format is not UTC, CA CMDB uses the system locale setting: for US English, the 12-hour format of "mm/dd/yyyy" or "mm/dd/yyyy hh:mm:ss *a*" where *a* specifies either AM or PM).

Contact and Other Lookup Fields

The Contact object combines first name, middle initial, and last name. The object has the following format:

```
<resource_contact>Lastname, Firstname MiddleInitial</resource_contact>
```

If you want to use a different field for a lookup field, you can supply a lookup attribute. For example, if you wanted to look up John Q. Doe by userid, use the following entry:

```
<resource_contact lookup="userid">doejo04</resource_contact>
```

Fields Validated Against Data in Existing Tables (SREL)

Common attributes accept only a specific set of values that must be defined in related tables in CA CMDB. These attributes can also have additional restrictions and exceptions that must be met for the assignment to occur. For example, a class attribute specified in XML must match one of the existing class names (CA CMDB default or user-defined). Otherwise, the CI is not created or updated. In addition, the value cannot be set to null, and the class must be Active for the assignment to occur.

The following fields validate data against data in existing tables:

audit_userid

bm_rep

bm_status

class

company_bought_for_uuid

contact_1

contact_2

contact_3

delete_flag

department

expense_code

family

location

manufacturer

model

operating_system

org_bought_for_uuid

priority

repair_org

resource_contact

resource_owner_uuid

service_org

service_type

status

supplier

vendor_repair

vendor_restore

More information:

Common Attributes (see page 11)

Data Translation

Data values provided by an MDR may not meet the requirements of CA CMDB because of the following reasons:

- The country or language for an MDR can differ from the country or language selected for CA CMDB server installation. For example: A CA Cohesion MDR that uses American English transfers data to a CMDB in France. When CA Cohesion creates server CIs, it specifies the CI family as "Server". However, in France the CI family must be specified as "Serveur". An inbound "Server" value must be translated to the required "Serveur" value whenever the American-based MDR communicates with the French CA CMDB installation.

- Data inconsistencies can occur in lookup (SREL) fields. For example: An MDR contains CIs with a manufacturer of "Dell Inc", "Dell Corporation", or simply "Dell". If the CA CMDB manufacturer table requires "Dell Inc", other values are rejected with warning messages. The invalid inbound "Dell Corporation" and "Dell" values must be translated to the standard "Dell Inc" value for the manufacturer attribute.
- Data inconsistencies in non-SREL fields. For example, some MDRs report data in units, while others report data in bytes or gigabytes. You can standardize the format of the data stored in the CMDB.

To satisfy these requirements, GRLoader can translate any incoming value to another value, by using an XML-based lookup file when GRLoader is run.

Important: The pre-edit translation and validation step occurs when CI and relationship XML is read, before normal GRLoader processing occurs (for example, update_if_null, lookup, dateformat) and before data is transmitted to the CA CMDB server.

Because each MDR can have specific translation requirements, the data translation file is specified for each GRLoader invocation. For standardization purposes, CA recommends that this file is located on a common file system and shared among the CA CMDB data providers.

Create Translation Rules

To use the GRLoader data translation and validation feature, create a set of rules to specify the data to be translated. Rules are required for each attribute and value being translated. Data translation rules are applied to the GRLoader input XML using the –tf *filename* parameter. The rules in *filename* are applied to all input submitted to GRLoader using the -i parameter.

To create translation rules, use a text editor to create and save rules in the GRLoader input XML like the following:

```
1.  <ruleset>
2.     <rule>
3.        <attribute>class</attribute>
4.        <from>Server</from>
5.        <to>Serveur</to>
6.     </rule>
7.     <rule>
8.        <attribute>manufacturer</attribute>
9.        <from>Dell Corporation</from>
10.       <to>Dell Inc</to>
11.    </rule>
12.    <rule>
13.       <attribute>manufacturer</attribute>
14.       <from>Dell</from>
15.       <to>Dell Inc</to>
16.    </rule>
17. </ruleset>
```

The translation rules are created.

Notes:

Lines 2-6 specify that whenever GRLoader encounters a line specifying <class>Server</class>: replace Server with Serveur (French) before sending the data to CA CMDB.

Lines 7-11 specify that a manufacturer of Dell Corporation should be replaced by Dell Inc. A single set of XML rules can be used to redefine several different attributes.

Lines 12-16 translate any input specifying Dell to the standard Dell Inc. The single set of XML contains multiple rules. When taken together, the rules specify multiple from/to values.

Data Transformation Example

This example shows a sample subset of the required rules for sharing data between MDRs using different languages. The GRLoader input XML example translates three classes from English to their French equivalents.

```
1.  <?XML version="1.0" encoding="UTF-8"?>
2.  <ruleset>
3.    <rule>
4.      <attribute>class</attribute>
5.      <from>Server</from>
6.      <to>Serveur</to>
7.    </rule>
8.    <rule>
9.      <attribute>class</attribute>
10.     <from>Printer</from>
11.     <to>Imprimante</to>
12.   </rule>
13.   <rule>
14.     <attribute>class</attribute>
15.     <from>Contract</from>
16.     <to>Contrat</to>
17.   </rule>
18. </ruleset>
```

Data Validation

Often the values that are accepted into an attribute must be validated against a list of acceptable values before the CI is stored. The relationship between an attribute and its set of acceptable values (stored in a separate table) is named a *single relationship* (SREL).

When you want to validate data even when an SREL is not created for it, data translation rules can enforce standardization of data values.

Example: Convert Units of Data Storage

In the following GRLoader input XML, the MDR provides data in gigabytes (GB), but we want to store the total number of bytes in the CMDB.

```
1.  <ruleset>
2.    <rule>
3.      <attribute>phys_mem</attribute>
4.      <from>1 GB</from>
5.      <to>1,073,741,824</to>
6.    </rule>
7.    <rule>
8.      <attribute>phys_mem</attribute>
9.      <from>2 GB</from>
10.     <to>2,147,483,648</to>
11.   </rule>
12. ...
13.   </ruleset>
```

Unmatched or Non-Standard Input Values

When validating data, you can reject unacceptable values and replace them with new values. When input data does not match a rule, it proceeds unchanged to the next GRLoader phase.

Example: Validate Primary Colors

In the following example, if the GRLoader input specifies <color>hot pink</color>, the color data is unaffected by any translation.

```
1.  <ruleset>
2.    <rule>
3.      <attribute>color</attribute>
4.      <from>red</from>
5.      <to>red</to>
6.    </rule>
7.    <rule>
8.      <attribute>color</attribute>
9.      <from>blue</from>
10.     <to>blue</to>
11.   </rule>
12.   <rule>
13.     <attribute>color</attribute>
14.     <from>yellow</from>
15.     <to>yellow</to>
16.   </rule>
17. </ruleset>
```

In the previous example, the "from" and "to" values are the same. The following example shows a shortened form of the rule definition that does not include the "to" value:

```
1.  <ruleset>
2.     <rule>
3.        <attribute>color</attribute>
4.        <from>red</from>
5.     </rule>
6.     <rule>
7.        <attribute>color</attribute>
8.        <from>blue</from>
9.     </rule>
10.    <rule>
11.       <attribute>color</attribute>
12.       <from>yellow</from>
13.    </rule>
14. </ruleset>
```

Using the shortened form of the rule definition, line 16 is more apparent. Line 16 specifies that if there is no matching "from" value for an attribute, that whatever value is specified, it is replaced by the "to" value.

```
1.  <ruleset>
2.    <rule>
3.      <attribute>color</attribute>
4.      <from>red</from>
5.    </rule>
6.    <rule>
7.      <attribute>color</attribute>
8.      <from>blue</from>
9.    </rule>
10.   <rule>
11.     <attribute>color</attribute>
12.     <from>yellow</from>
13.   </rule>
14.   <rule>
15.     <attribute>color</attribute>
16.     <to>unknown color</to>
17.     <unmatched>yes</unmatched>
18.   </rule>
19. </ruleset>
```

The GRLoader input includes a rule that matches "hot pink" (the "unmatched" rule on line 16). If color specifies an attribute other than red, blue or yellow (as indicated on lines 4, 8 and 12 respectively), that color is changed to the "to" value. For example, <color>hot pink</color> is recoded to <color>unknown color</color>.

If only lines 14-18 appear in the rule set (that is, no matches are possible), all colors in the GRLoader input XML file are set to "unknown color". This technique forces all values of a specific attribute to a single value.

Important!: The editing process cannot create new XML when none exists. If the input XML does not include information about <widgets>, all rules about <widgets> are ignored.

Example: Change All Unmatched "owner" Attributes to "Pete"

The following GRLoader input XML sets the value Pete for unmatched owners.

```
1. <ruleset>
2.   <rule>
3.     <attribute>owner</attribute>
4.     <unmatched>yes</unmatched>
5.     <to>Pete</to>
6.   </rule>
7. </ruleset>
```

Consider how the following GRLoader input XML uses the previous ruleset:

```
1. <GRLoader>
2. <ci>
3.   <name>server1</name>
4.   <owner>John</owner>
5. </ci>
6. </GRLoader>
```

If the attribute "owner" has a rule, the rule attempts to match the value "John". Because no rule for the value "John" exists, GRLoader looks for an unmatched rule for the attribute "owner". If one exists, the translated input results in the following:

```
1. <GRLoader>
2. <ci>
3.   <name>server1</name>
4.   <owner>Pete</owner>
5. </ci>
6. </GRLoader>
```

Now consider the following GRLoader input XML file:

```
1. <GRLoader>
2. <ci>
3.   <name>server2</name>
4. </ci>
5. </GRLoader>
```

The ruleset results in the following:

1. <GRLoader>
2. <ci>
3. <name>server2</name>
4. </ci>
5. </GRLoader>

The CI "server2" does not set the owner to Pete because no owner tag exists in the original XML.

Specify an Empty String

When an empty string must be specified as either the "from" value or the "to" value, always include the <from> or <to> value in the rule set.

Important!: Specifying <to></to> or not specifying <to> in the XML have very different XML meanings!

```
1.  <ruleset>
2.    <rule>
3.      <attribute>size</attribute>
4.      <from>XXL</from>
5.    </rule>
6.    <rule>
7.      <attribute>manufacturer</attribute>
8.      <from>General Motors</from>
9.      <to></to>
10.   </rule>
11. </ruleset>
```

Lines 2-5 specify that a size of XXL is possible. Because <to> is not specified, no recoding is performed on a size=XXL. This kind of rule is only useful when an unmatched rule appears later in the rule set for the same attribute.

Lines 6-10 examine all input data for a manufacturer="General Motors". Whenever this rule is found, because "<to></to>" is specified in the rule on line 9, the value of "General Motors" is replaced by "".

If you want to blank out the manufacturer, specify the update_if_null="YES" keyword in the GRLoader input XML.

Note: For more information about the use of the "update_if_null" option to blank out values in the database, see the *CA CMDB Technical Reference Guide*.

Alternative Comparison Methods

The default method uses "equals" for comparison. That is, when the <from> value is compared with the value in the GRLoader input, the two are considered to match when they are equal. The <comparetype> tag specifies alternative forms of comparison.

The comparetype tag accepts one of the following values:

- startswith
- endswith
- contains
- equals
- equalsignorecase

Example: Standardize a Company Name

In the following example, all manufacturer names beginning with "Dell" (such as "Dell Corp", "Dell Inc", "Dell Corporation") are reset to "Dell".

```
1.  <ruleset>
2.    <rule>
3.      <attribute>manufacturer</attribute>
4.      <from>Dell Corp</from>
5.      <to>Dell</to>
6.    </rule>
7.    <rule>
8.      <attribute>manufacturer</attribute>
9.      <from>Dell Inc</from>
10.     <to>Dell</to>
11.   </rule>
12.   <rule>
13.     <attribute>manufacturer</attribute>
14.     <from>Dell Corporation</from>
15.     <to>Dell</to>
16.   </rule>
17. </ruleset>
```

Alternatively, the following rule produces the same result:

```
1. <ruleset>
2.   <rule>
3.     <attribute>manufacturer</attribute>
4.     <from>Dell</from>
5.     <comparetype>startswith</comparetype>
6.     <to>Dell</to>
7.   </rule>
8. </ruleset>
```

Input Rejection

To reject input from an MDR before loading data into the CMDB, use the <reject> tag.

Example: Rejecting Input Data

The<reject tag> can be used with the <comparetype> tag, as shown in following example.

```
1. <ruleset>
2.   <rule>
3.     <attribute>name</attribute>
4.     <from>test</from>
5.     <comparetype>startswith</comparetype>
6.     <reject>yes</reject>
7.   </rule>
8. </ruleset>
```

When a reject rule is matched, the corresponding CI or relationship is rejected and the CMDB is not updated or created for that entire object. The transaction is skipped, and the XML is written to the _err file with an error message indicating that it was rejected.

Rule Syntax

The following table describes the XML tags that are used in a data translation rule set.

Tag	Description
<?XML version="1.0" encoding="codepage"?>	Enables different code pages for GRLoader.
<ruleset>	Begins a rule set. A ruleset can contain many rules.
<rule>	Begins a rule
<attribute>*attr_name*</attribute>	Specifies an attribute that the rest of the rule applies to. *attribute* must be a valid CA CMDB attribute name.
<from>*value*</from>	Specifies a value to be changed. The <from> tag is modified by the <comparetype> tag.
<to>*value*</to>	Specifies the replacement value
<comparetype>*value*</comparetype>	(Optional) Specifies one of the following values: ■ equals ■ startswith ■ endswith ■ contains ■ equalsignorecase If not specified, "equals" is the default.
<reject>yes</reject>	Specifies that GRLoader reject the CI or relationship. Yes can be specified as "yes" or one (1). No can be specified as "no" or zero (0). If not specified in a rule, the default is "no" (reject).
<rulename>*rule_name*</rulename>	(Optional) *name* assigned to identify this rule. This name appears in debugging messages.
</rule>	Ends a rule
</ruleset>	Ends a rule set

Running GRLoader with Translation Enabled

To run GRLoader using translation/transformation, run GRLoader with the **–tf** *filename* option. *filename* specifies the file which that contains the translation rule set.

Note: Alternatively, you can specify grloader.translationfile=*filename* in the configuration file.

Logging

Input modifications are logged in the stdlog.n and the GRLoader log messages, which reflect the data values after translation rules have run.

You can run GRLoader with the –T option set to five (5) or greater to display additional debugging information.

Localized CA CMDB Considerations

When implementing a localized CA CMDB, you can translate the class and family names from one language to another. Translation rules are provided in the $nxroot/java/lib/GRLoader directory. These rules are named xlate_*xx*_to_*yy*.RUL. *xx* and *yy* represent the language codes (en, fr, es, dm, and so on).

You can expand these rules to accommodate any additional SREL fields.

The XML Header

Following XML coding standards, if the XML content in the rule set contains non-UTF-8 characters, you may require a line at the beginning of the XML translation file that is similar to the following:

<?XML version="1.0" encoding="*codepage*"?>

codepage defines the code page.

Note: For more information about GRLoader XML, see the *CA CMDB Technical Reference Guide*.

Test the Rules

Before running the XML input file through GRLoader, test the rules and view the translation results.

To test the translation rules, run GRLoader without the "–a" or "–n" options.

Running without inserts and updates effectively writes the translated and validated XML to the _err.XML file, where the results of the rule translation can be reviewed.

Run GRLoader from a Remote MDR

You can use GRLoader to copy data from a remote MDR to the CMDB in either of two ways:

- Copy the XML data from the remote system that runs the MDR to the system running CA CMDB, and then execute GRLoader on the CA CMDB system.
- Execute GRLoader on the remote MDR system itself.

To prepare to execute GRLoader from a remote system that does not have CA CMDB installed

1. Verify that the Java Runtime Environment (JRE) version 6.0 or higher is installed and available.
2. Copy the contents of the %NX_ROOT%\java\lib directory from the CA CMDB system to a directory on the remote system where you want to run it. This remote directory is called %ROOT%.
3. Create a file called NX.ENV in the %ROOT% directory:

   @NX_LOG=path_which_will_contain log files
4. Create directory %ROOT%\site\cfg
5. Create directory %ROOT%\log

To run GRLoader from the remote system, execute the following command:

```
java -Xmx512M -cp %ROOT% -jar %ROOT%/GRLoader.jar -N %ROOT% -u [userid] –s [server] -i [other GRLoader options]
```

where %ROOT% is the fully qualified path containing the files that were copied in Step 2.

GRLoader and Multi-Tenancy

Multi-tenancy allows multiple independent tenants to share hardware and application support resources in a single implementation of CA CMDB. You can use the tenant attribute (<tenant>) in XML so that GRLoader assigns tenants for multi-tenancy use in CA CMDB. All changes that you make to the tenant attribute are reflected in the CA CMDB Versioning tab.

The tenant attribute is as follows:

<tenant>

Specifies the tenant assignment for the CI/Relationship. You can use PUBLIC to specify that the object is public. The Tenant may or may not be set in the object, depending on your default roles tenant access.

Note: For more information about tenant access, see the *Administration Guide*.

Consider the following tenant assignment behavior *before* you implement multi-tenancy using GRLoader:

- Tenants can only be assigned during the creation of a CI or relationship.
- All CIs that GRLoader loads are assigned either a default tenant or a specific one from the XML file.
- GRLoader XML lets you specify the <tenant> attribute or a default tenant for a CI or a relationship.
- If you do not specify <tenant> or a default tenant, the tenant is assumed to be blank and the tenant assignment is based on the logged on users default role. This default role assignment is used primarily for CA Cohesion and other MDRs that do not specify a tenant when creating CIs.
- GRLoader sets the tenant of a CI or relationship based on input from the following sources. When the default role lets you select the choice of tenant in the objects created, you can specifically set the tenant for an object. The multi-tenancy option must be set to setup or on to use <tenant>.
  - Including <tenant> in the xml.
  - Use of the –dt command line option when invoking GRLoader.
  - Use of the grloader.defaulttenant option in the configuration file.
  - The default tenant associated with the contact.

Example: Set the Tenant for an Object

Your default access allows you to create CIs for a specific tenant and for public use. You want to create several public CIs.

Run grloader with a default tenant of PUBLIC to specifically indicate the tenant of the new objects.

Note: For more information about tenant access and tenant assignment rules, see the *Administration Guide*.

More information:

How Multi-Tenancy Affects CIs (see page 183)

Chapter 4: CI Reconciliation

This section contains the following topics:

CI Reconciliation Attributes

Reconciliation associates imported CI data with CIs in the CMDB.

Reconciliation uses the following CI identifying attributes:

- Name
- Serial Number
- Asset Number
- System Name
- DNS Name
- MAC Address

You must specify at least one of these values when you create or reference an existing CI.

The following table shows the results of the reconciliation process:

Name	Serial Number	Asset Number	System Name	DNS Name	MAC Address	Result
Unique	Null	Null	Null	Null	Null	CI Created
Null	Unique	Null	Null	Null	Null	CI Created
Null	Null	Unique	Null	Null	Null	CI Created
Null	Null	Null	Unique	Null	Null	CI Created
Null	Null	Null	Null	Unique	Null	CI Created
Null	Null	Null	Null	Null	Unique	CI Created
Duplicate	Duplicate	Duplicate	Unique	Duplicate	Duplicate	CI Created
Unique	Duplicate	Duplicate	Duplicate	Duplicate	Duplicate	Recognized as Duplicate CI

Name	Serial Number	Asset Number	System Name	DNS Name	MAC Address	Result
Null	Null	Null	Null	Unique	Unique	CI Created
Null	Null	Null	Null	Duplicate	Unique	Recognized as Duplicate CI
Null	Null	Null	Null	Unique	Duplicate	Recognized as Duplicate CI
Duplicate	Duplicate	Unique	Duplicate	Duplicate	Duplicate	CI Created
Duplicate	Unique	Duplicate	Duplicate	Duplicate	Duplicate	CI Created
Duplicate	Duplicate	Duplicate	Duplicate	Duplicate	Unique	Recognized as Duplicate CI
Duplicate	Duplicate	Duplicate	Duplicate	Unique	Duplicate	Recognized as Duplicate CI
Duplicate	Duplicate	Duplicate	Duplicate	Unique	Unique	Recognized as Duplicate CI

More information:

Families, Classes, and Reconciliation for J2EE (see page 105)

Transaction Work Area Attributes

The Transaction Work Area (twa) tables are:

ci_twa_ci

A single table that includes all attributes across all CA CMDB families. Table data is stored in denormalized form to enable customers and services to understand and manipulate the content more easily.

ci_twa_relation

Complements the ci_twa_ci table. Contains relationship information.

ci_twa_statusnames

Descriptive labels for row status.

External processes update these tables and GRLoader reads them during transaction processing. When processing is complete, GRLoader updates the row_status and tran_message columns to indicate whether the transaction has completed successfully.

Note: If multiple errors or warnings occur, the messages are concatenated.

More information:

ci_twa_ci Attributes (see page 169)
ci_twa_relation Attributes (see page 169)

ci_twa_ci Attributes

The ci_twa_ci table contains attributes for CI transactions.

Column Name	Notes
id	Transaction identifier
last_mod_dt	Sets the current date every time the row is added or updated.
tran_dt	Sets the current date and time if no value is supplied when row is added.
creation_date	Sets the current date and time when row is added.
delete_flag	Sets to zero (0) if no other value is supplied when row is added.
tran_status	Sets to zero (0) if no other value is supplied when row is added.

ci_twa_relation Attributes

The ci_twa_relation table contains attributes for relationship transactions.

Column Name	Notes
id	Transaction identifier
last_mod_dt	Sets the current date every time the row is added or updated.
tran_dt	Sets the current date and time if no value is supplied when row is added.

Column Name	Notes
creation_date	Sets the current date and time when row is added.
delete_flag	Sets to zero (0) if no other value is supplied when row is added.
tran_status	Set to zero (0) if no other value is supplied when row is added.

Chapter 5: CA CMDB Web Services

This section contains the following topics:

CA CMDB Web Services

CA CMDB provides a set of high-level web services that supports CMDBf Web Services Standard version 1.0. These services allow external CMDBf-aligned applications and also registered Management Data Repositories (MDRs) to interact with CA CMDB, including federated MDRs in accordance with the CMDBf/DMTF standard.

You can find the CMDBf specification in the following document:

http://cmdbf.org/schema/1-0-0/CMDBf%20v1.0.pdf

Web Services Deployment

CA CMDB installation automatically deploys CA CMDB web services. If you want, you can redeploy the web services.

To redeploy CA CMDB Web Services

1. Execute the following command:

   : install-dir \sdk\websvc\cmdbf

2. Deploy the following files:

   - deploy.wsdd
   - cmdbf.jar

3. Execute the following file:

   deploy_cmdbws.bat

   The CA CMDB web services are deployed.

Web Service Components

CA CMDB Web Services consists of two defined services:

Registration Service

Allows clients to create\update CIs and Relationships. The endpoint can be located at the following address:

http://<*servername*>:< port >/axis/services/RegistrationPort

Query Service

Allows clients to query for CIs and Relationships. The endpoint can be located at the following address:

http://<*servern*ame>:< port >/axis/services/QueryPort

Registration Service

The Registration service uses push mode federation. The fundamentals of push mode federation are as follows:

- The client invokes the Register operation for configuration items or relationships that it wants to register. Each item or relationship must be associated with at least one record type supported by the Registration service.

  Note: The CMDBf Register web service either creates a new CI or, if that CI already exists, updates it. If the CI already exists and is Inactive, the CI is set to Active and all attributes passed to it are updated. To prevent updates to Inactive CIs, send Inactive as one of the attributes.

- The Registration service responds with the registration status for each item or relationship named in the Register operation. The status is either accepted or declined.

The management data repository (MDR) also uses the Register operation to update registered data. An update can consist of any combination of the following:

- Changes to existing data, such as a property value change
- Deregistering a previously registered record type for this configuration item or relationship

MDR Registration

You must do the following to register an MDR:

1. Create a valid MDR manually before using CMDBf web services to register a CI.
2. Set the MdrName to your MDR Name.
3. Set the MdrClass to "cmdbf" (a static value).

Query Service

The Query service contains a GraphQuery operation that can be used for anything from a simple instance query to a much more complex topological query. A GraphQuery request describes items and relationships of interest in the form of a graph. Constraints can be applied to the nodes (items) and edges (relationships) in that graph to further refine them.

The GraphQuery response contains the items and relationships that, in combination, compose a graph that satisfies the constraints of the graph in the query. A graph query is only one level deep.

More information:

CMDBf Implementation: CA CMDB Limitations (see page 177)

Login

You log in by passing credential information either through Java or a SOAP message. The following examples show you how you can log in.

Example: Java

```
QueryBindingStub binding;

binding = (QueryBindingStub) new QueryServiceLocator().getQueryPort(new URL(Endpoint));

SOAPHeaderElement Header = new SOAPHeaderElement("http://schemas.xmlsoap.org/soap/envelope/",
"securityHeader");

Header.setPrefix("sec");

javax.xml.soap.SOAPElement Element = null;

Element = Header.addChildElement("username");
Element.addTextNode("CMDBAdmin");
Element = Header.addChildElement("password");
Element.addTextNode("password");
binding.setHeader(Header);
```

Example: SOAP Message

```
<soapenv:Header>
    <sec:securityHeader  xmlns:sec="http://schemas.xmlsoap.org/soap/enveloe/">
    <sec:username>CMDBAdmin</sec:username>
    <sec:password>password</sec:password>
    </sec:securityHeader>
    </soapenv:Header>
```

CA CMDB Web Services Access

You can access CA CMDB web services by using one of the following methods:

- Create your own message for the SOAP interface to call your endpoint.
- Write your own Java program to access the CA CMDB endpoint.

Code to Return All CIs From Every Family in CA CMDB

You can use the following code to return all CIs from every Family in CA CMDB:

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:dat="http://cmdbf.org/schema/1-0-0/datamodel">
  <soapenv:Header>
     <sec:securityHeader xmlns:sec="http://schemas.xmlsoap.org/soap/envelope/">
          <sec:username>cmdbadmin</sec:username>
          <sec:password>miramar</sec:password>
     </sec:securityHeader>
  </soapenv:Header>
  <soapenv:Body>
    <dat:query>
     <itemTemplate suppressFromResult="false" id="All">
[constraints go here]
       </itemTemplate>
    </dat:query>
  </soapenv:Body>
</soapenv:Envelope>
//************************************************//
```

Sample Java Program

To assist you with web services client application development, CA CMDB provides the following sample Java programs:

- RegistrationServiceTestCase.java shows you how to create two CIs and a Relationship.
- QueryServiceTestCase.java shows you how to query your CMDB for all CIs.

You can find sample programs at the following location:

```
%NX_ROOT%\sdk\websvc\cmdbf\
```

WSDL Document

The location of the Web Services Description Language (WSDL) document that you need depends on the function of CA CMDB you intend to use. The following locations are available:

- The default location of the WSDL for the CMDBf Web Services for Registration is the following URL:

  http://<*servername*>:<*port*>/axis /services/RegistrationPort?wsdl

- The default location of the WSDL for the CMDBf Web Services for graphQuery is the following URL:

  http://<*servername*>:<*port*>/axis/services/QueryPort?wsdl

Note: Many servlet containers use a port number different from 80. For example, Tomcat defaults to port 8080, which is established during installation.

Security Considerations

There are important security considerations when deploying web services. The default configuration when using HTTP is insecure, as it is for all information in web service calls sent between the client and the server in plain text over the network using the HTTP protocol. This configuration includes application data and login methods, and it can include passwords. Administrators who deploy web services are encouraged to consider security carefully and to take additional configuration steps at the application and network levels to secure your web service environment.

Important! The default web service configuration used with HTTP is insecure and vulnerable to security threats that can include password discovery, session fixation, and data spying, and so on.

CMDBf Implementation: CA CMDB Limitations

CA CMDB has limitations in its CMDBf implementation. The following CMDBf pseudo-schema highlights some limitation areas:

```
<query>
    <itemTemplate id="xs:ID" suppressFromResult="xs:boolean">
        (<contentSelector ...>...</contentSelector> ?
        <instanceIdConstraint>...</instanceIdConstraint> ?
        <recordConstraint>
            <recordType ... /> *
            <propertyValue ...>...</propertyValue> *
        </recordConstraint> *)
        |
        (<xpathExpression...>...</xpathExpression> *)
        xs:any
    </itemTemplate> *
    <relationshipTemplate id="xs:ID" suppressFromResult="xs:boolean">
        (<contentSelector ...>...</contentSelector> ?
        <instanceIdConstraint>...</instanceIdConstraint> ?
        <recordConstraint>
            <recordType>...</recordType> *
            <propertyValue>...</propertyValue> *
        </recordConstraint> *)
        |
        (<xpathExpression ...>...</xpathExpression> *)
        <sourceTemplate ref="xs:IDREF" minimum="xs:int"?
         maximum="xs:int"?/>
        <targetTemplate ref="xs:IDREF" minimum="xs:int"?
         maximum="xs:int"?/>
        <depthLimit ... /> ?
        xs:any
    </relationshipTemplate> *
</query>
```

Item Template Limitations

The CA CMDB implementation uses the CMDBf specification with the following item template limitations:

- Multiple RecordConstraints under one ItemTemplate are handled as Logical OR, not Logical AND.
- suppressFromResult="xs:boolean" is not supported.

  CA CMDB always displays the results.
- <contentSelector matchedRecords="xs:*boolean*">:matchedRecords="true" is supported, but matchedRecords="false" is not.

  CA CMDB only supports one selectedRecordType per contentSelector.
- <recordConstraint> only supports one <recordType ... /> expression; for example <recordType namespace="http://cmdb.ca.com/Hardware" localName="Hardware.Server"/>

  The localName expression must identify a valid CA CMDB family.

  Replace each space in a family name that includes spaces with a dash (-). For example, replace Software.Application Server with Software.Application-Server.
- <propertyValue namespace="xs:anyURI" localName="xs:NCName" recordMetadata="xs:boolean" matchAny="xs:boolean">

  recordMetadata is not supported.

  matchAny is set to the default value of false; this value allows "Logical AND" and "Logical OR" CMDBf queries on all the property values. "Logical AND" queries are not supported.

  "like" operators are not supported.

  "equals" does not support caseSensitive, or negate.
- <xpathExpression...>...</xpathExpression>: is not implemented.

Registration Limitations

Registration has the following limitations:

- Multiple record elements under one Item element or Relationship element
- Additional RecordType

Relationship Template Support and Limitations

CA CMDB supports the following relationshipTemplate features:

- contentSelector
- relationshipTemplate ID
- recordConstraint—can use propertySelectors
- sourceTemplate
- targetTemplate

CA CMDB *does not* support the following relationshipTemplate features:

- Source/Target Template @minimum
- Source/Target Template @maximum
- Depth Limit with @MaxIntermediateItems
- Depth Limit with @intermediateItem Template
- instanceIdConstraint
- xpathExpression
- suppressFromResult in relationship Template

Example: Register Request relationshipTemplate Using a contentSelector and propertySelectors Under the recordConstraint

```
<relationshipTemplate  id="rels">
        <contentSelector>
            <selectedRecordType namespace=" http://cmdb.ca.com/r1" localName="is-deployed-by">
                <selectedProperty namespace=" http://cmdb.ca.com/r1" localName="last_mod_by"/>
                <selectedProperty namespace=" http://cmdb.ca.com/r1" localName="last_mod_dt"/>
                <selectedProperty namespace=" http://cmdb.ca.com/r1" localName="child"/>
                <selectedProperty namespace=" http://cmdb.ca.com/r1" localName="parent"/>
            </selectedRecordType>
         </contentSelector>
                <sourceTemplate ref="Linux1" />
                <targetTemplate ref="Linux2" />
                <recordConstraint>
                   <recordType namespace=" http://cmdb.ca.com/r1" localName="is-deployed-by"/>
                      <propertyValue namespace=" http://cmdb.ca.com/r1" localName="parent"
matchAny="true">
                      <equal>test</equal>
                      </propertyValue>
                 </recordConstraint>
</relationshipTemplate>
```

Example: Response (edges portion)

```
<edges templateId="rels">
    <relationship xsi:type="ns3:RelationshipType" xmlns:ns3="http://cmdbf.org/schema/1-0-0/datamodel">
        <source>
            <mdrId xsi:type="xsd:string">http://cmdb.ca.com/r1</mdrId>
            <localId xsi:type="xsd:string">nr:C2B975A96C03934BA61080C0F79C8BD2</localId>
        </source>
        <target>
            <mdrId xsi:type="xsd:string">http://cmdb.ca.com/r1</mdrId>
            <localId xsi:type="xsd:string">nr:B985B5297C46224283D0E5F2632A2A44</localId>
        </target>
        <record xsi:type="ns3:RecordType">
            <recordMetadata>
                <recordId xsi:type="xsd:string">bmhier:400004</recordId>
            </recordMetadata>
          <is-deployed-by xmlns="http://cmdb.ca.com/r1/is-deployed-by">
            <child>ali5</child>
            <last_mod_dt>6 Oct 2008 16:34:48 GMT</last_mod_dt>
            <parent>ali</parent>
            <last_mod_by>ServiceDesk</last_mod_by>
          </is-deployed-by>
        </record>
        <instanceId xsi:type="ns3:MdrScopedIdType">
          <mdrId xsi:type="xsd:string">http://cmdb.ca.com/r1</mdrId>
          <localId xsi:type="xsd:string">bmhier:400004</localId>
        </instanceId>
    </relationship>
</edges>
```

Generic Limitations

The following generic limitations apply:

- <recordMetadata>

  <recordId>...</recordId>

  <lastModified>...</lastModified> ?

  <baselineId>...</baselineId> ?

  <snapshotId>...</snapshotId> ?

  xs:any </recordMetadata>:

  Note: recordMetadata only returns recordId, and the xs:any.

  Other values have no meaning to CA CMDB.

- CA CMDB does not support case-sensitivity for the equal, contains, and like operators.
- CA CMDB does not support escape sequences as unique wild card characters.
- CMDBf supports XSD date and XSD dateTime formats:

  "YYYY-MM-DD" -XSD date

  "YYYY-MM-DDThh:mm:ss" -XSD dateTime

Date Data Type

The Date Data type is specified in the following form:

YYYY-MM-DD

where:

YYYY

Specifies the year.

MM

Specifies the month.

DD

Specifies the day of the month.

Note: All components are required.

DateTime Data Type

The DateTime data type is used to specify both a date and a time on that date.

dateTime is specified in the following form:

YYYY-MM-DDThh:mm:ss

where:

YYYY

Specifies the year.

MM

Specifies the month.

DD

Specifies the day.

T

Specifies the start of the required time section.

hh

Specifies the hour.

mm

Specifies the minute.

ss

Specifies the second.

Note: All components are required.

Chapter 6: Multi-Tenancy and CIs

This section contains the following topics:

How Multi-Tenancy Affects CIs

The following CA CMDB objects are *tenanted*:

- CIs and their associated extension tables
- CI relationships
- Management Data Repository (MDR) providers
- MDR mappings

To create, edit, and list CIs effectively, you must understand how multi-tenancy affects CIs. When you create, list, or update CIs, consider the following:

- When multi-tenancy is installed, the Role Detail form includes Tenant Access and Tenant Write Access drop-down lists on its Authorization tab that contains the following options:
  - Contact's Tenant
  - Single Tenant
  - Tenant Group
  - All Tenants

  The specified Tenant Access affects how you can work with CIs in the CA CMDB-related applications.
- If the Tenant Access or Tenant Write Access type is not specified for the contact, the default role is used.
- On the Role Detail form, the Update Public check box controls whether a user in the role is authorized to create or update public data. This check box is effective only for users associated with the service provider, as tenant users are restricted to read-only access to data not belonging to their tenant.

Important! Users associated with a tenant other than the service provider can only create or update objects associated with their own tenant unless authorized by their role. Users associated with the service provider are permitted to create or update objects belonging to tenants other than their own.

More information:

GRLoader and Multi-Tenancy (see page 165)

CI Lists and Multi-Tenancy Relationships

The following table shows the results of listing CIs in CA CMDB-related applications with multi-tenancy enabled.

This table is a partial listing of the many possible combinations of role access options, and how they affect the various applications.

Role Tenant Access Option	Web UI	CA APM	Visualizer	GRLoader	CA Cohesion ACM
Contact's Tenant	Lists CIs in the same tenant and public	Lists all CIs	Lists CIs in the same tenant and public	Lists CIs in the same tenant and public	Lists CIs in the same tenant and public
Single Tenant	Lists CIs in the same tenant and public	Lists all CIs	Lists CIs in the same tenant and public	Lists CIs in the same tenant and public	Lists CIs in the same tenant and public
Tenant Group	Lists CIs in the all tenants in a tenant group and public	Lists all CIs	Lists CIs in the all tenants in a tenant group and public	Lists CIs in the all tenants in a tenant group and public	Lists CIs in the all tenants in a tenant group and public
All Tenants	Lists all CIs	Lists all CIs	Lists all CIs	Lists all CIs	Lists all CIs

CI Creation and Multi-Tenancy Relationships

The following table shows the results of creating CIs in CA CMDB-related applications with multi-tenancy enabled.

This table is a partial listing of the many possible combinations of role access options, and how they affect the various applications.

Role Tenant Access Option	Web UI	CA APM	Visualizer	GRLoader	CA Cohesion ACM
Contact's Tenant	CI tenant is the one assigned to the signed-on user	CI tenant is created as public	Uses the Web UI to create CIs	CI tenant is the default tenant associated with the signed-on user **Note:** We recommend that you set up a distinct contact for every data source. The contact definition should specify a role that is Contact's Tenant.	CI tenant is the one assigned to the signed-on user
Single Tenant	CI tenant is the one assigned to the signed-on user's proxy	CI tenant is created as public	Uses the Web UI to create CIs	CI tenant is the default tenant associated with the signed-on user **Note:** We recommend that you set up a distinct contact for every data source. The contact definition should specify a role which is contact-tenant.	CI tenant is the one assigned to the signed-on user's proxy

Role Tenant Access Option	Web UI	CA APM	Visualizer	GRLoader	CA Cohesion ACM
Tenant Group	CI tenant can be selected from list in the UI that includes only those tenants in the group **Note:** The default tenant can be overridden by using the GRLoader -dt option.	CI tenant is created as public	Uses the Web UI to create CIs	Can use the <tenant> option to assign a tenant. **Note:** We recommend that you set up a distinct contact for every data source. The contact definition should specify a role which is contact-tenant.	CI is created as public unless -dt is specified
All Tenants	CI tenant can be selected from a list in the UI	CI tenant is created as public	Uses the Web UI to create CIs	Can use the <tenant> option to assign a tenant. If a tenant is not specified, the default is public. **Note:** We recommend that you set up a distinct contact for every data source. The contact definition should specify a role that is Contact's	CI is created as public unless -dt is specified

Role Tenant Access Option	Web UI	CA APM	Visualizer	GRLoader	CA Cohesion ACM
				Tenant.	

CI Update and Multi-Tenancy Relationships

The following table shows the results of updating CIs in CA CMDB-related applications with multi-tenancy enabled. Consider the following when you update CIs:

- Only CIs that can be listed can be updated.
- The tenant attribute can only be changed by using the command line.
- CA Cohesion ACM does not populate the <tenant> attribute.

This table is a partial listing of the many possible combinations of role access options, and how they affect the various applications.

Role Tenant Access Option	Web UI	CA APM	Visualizer	GRLoader	CA Cohesion ACM
Contact's Tenant	Can update a CI in same tenant Role and service provider determine the public read/write access	Can update any CI	Uses the Web UI to update CIs	Can update a CI in same tenant Role and service provider determine the public read/write access	Can update a CI in same tenant Role and service provider determine the public read/write access
Single Tenant	Can update a CI in same tenant Role and service provider determine the public	Can update any CI	Uses the Web UI to update CIs	Can update a CI in same tenant Role and service provider determine the public read/write access	Can update a CI in same tenant Role and service provider determine the public read/write access

Role Tenant Access Option	Web UI	CA APM	Visualizer	GRLoader	CA Cohesion ACM
	read/write access				
Tenant Group	Can update a CI in same tenant Cannot update CIs in the tenant group Role and service provider determine the public read/write access CI relationship updates across tenants requires that the contact must be a service provider tenant	Can update any CI	Uses the Web UI to update CIs	Can update a CI in same tenant Cannot update CIs in the tenant group Role and service provider determine the public read/write access CI relationship updates across tenants requires that the contact must be a service provider tenant	Can update a CI in same tenant Cannot update CIs in the tenant group Role and service provider determine the public read/write access CI relationship updates across tenants requires that the contact must be a service provider tenant
All Tenants	Can update any CI	Can update any CI	Uses the Web UI to update CIs	Can update any CI	Can update any CI