ENOLA

Querying MagicDraw Models with Structured Expressions

October 2024

About Us

LEAVE THE PAST IN THE PAST

IT'S TIME TO EVOLVE, DIGITALLY

WE ARE A TRAINING, COACHING, AND CONSULTING FIRM DEDICATED TO THE RAPID EVOLUTION OF OUR CLIENTS WITHIN THE DIGITAL UNIVERSE. OUR SERVICES ARE DIRECTED TOWARDS:

- DIGITAL ENGINEERING/TRANSFORMATION
- MODEL BASED SYSTEMS ENGINEERING
- ENTERPRISE ARCHITECTURE
- SOFTWARE ARCHITECTURE
- DATABASE ARCHITECTURE
- ONTOLOGIES
- COLLABORATION SERVER MANAGEMENT

MISSION

Enola WILL train, coach, and mentor your staff to be independently successful as quickly as possible.

Yes, our mission is to work ourselves out of a job!

Course DESCRIPTION

The Querying MagicDraw Models with Structured Expressions is a one-day advanced course designed to introduce the core concepts and features of developing and utilizing model queries in MagicDraw/Cameo.

This course provides a mix of slides and hands-on, instructor-led demonstrations. Our trainers are all experienced practitioners who understand the balance of theory and practicality.

Prerequisites:
   Working knowledge of MagicDraw/Cameo
   Working knowledge of SysML
Required Software:
   No Magic's MagicDraw (version 19.0+) with the SysML plugin or equivalent No Magic or Dassault Systèmes CATIA Magic products.
Take-Aways:
   Understanding of capabilities and best practices for querying MagicDraw models with structured expressions

AGENDA

- Module 01 - Course Introduction
- Module 02 - The Basics
- Module 03 - UML Metamodel and Profiles
- Module 04 - Navigation Operations
- Module 05 - Find, Test, and Filter
- Module 06 - Values & Operations from Model
- Module 07 - Scripts
- Module 08 - Applications in MagicDraw

# COURSE CONTENT

THE BASICS

The three main components of a query include the input(s), operation(s), and output(s). The **inputs** are processed through a set of **operations** to produce **output**.

This module covers:
- What is a Query?
- Key Concepts
  - Query Structure
  - Contextual Variables
  - Operations
  - Outputs
- Uses for Structured Expressions
- The Expression Editor
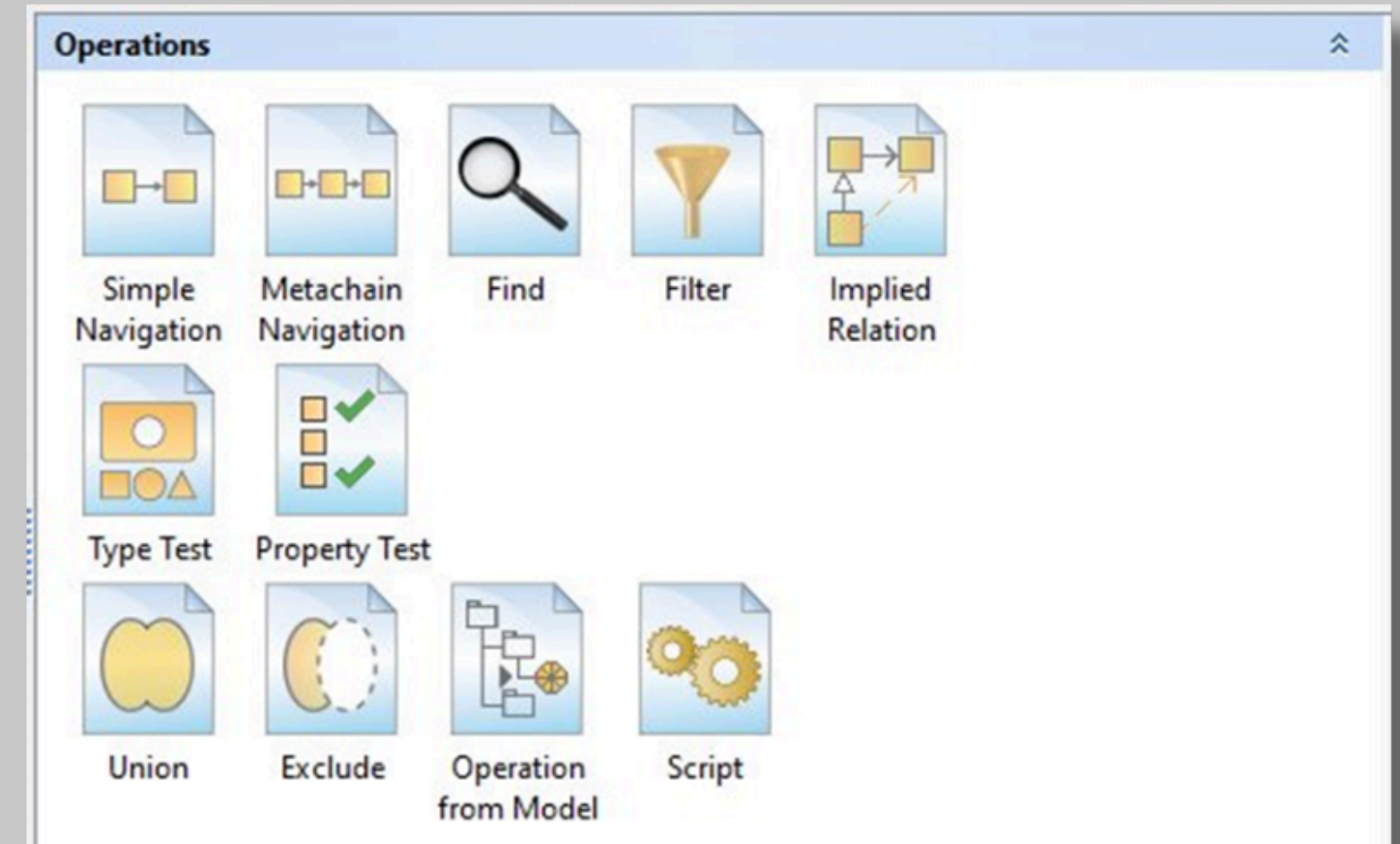
UML Metamodel and PROFILES
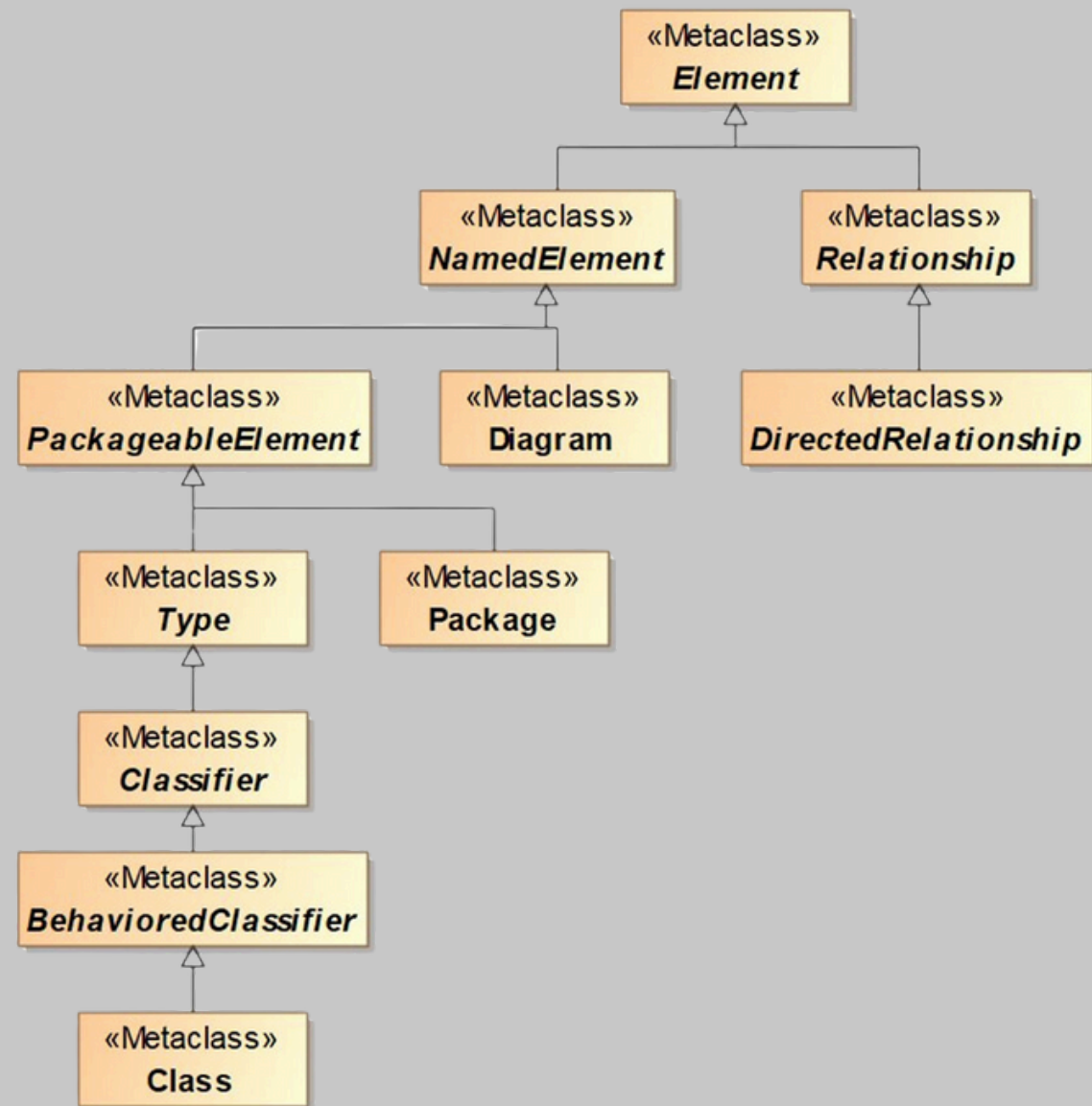
The Unified Modeling Language (UML) is a model-based software engineering language that serves as the bedrock of other languages, like SysML, BPMN, and UAF. Becoming familiar with the metamodels of each makes developing queries and macros in MagicDraw significantly easier.

This module covers:
- UML Metamodel
  - Metaclasses
  - Metaproperties
  - Reading the metamodel
- Profiles
 - Stereotypes
- Tag Definitions / Values

Navigation OPERATIONS

It is common for users to want to navigate relationships or properties of one element to get to another. These kinds of Structured Expressions are achieved using Simple Navigation and Metachain Navigation operations.

This module covers:
- Simple Navigation
- Metachain Navigation
- Metachain Helper Functions
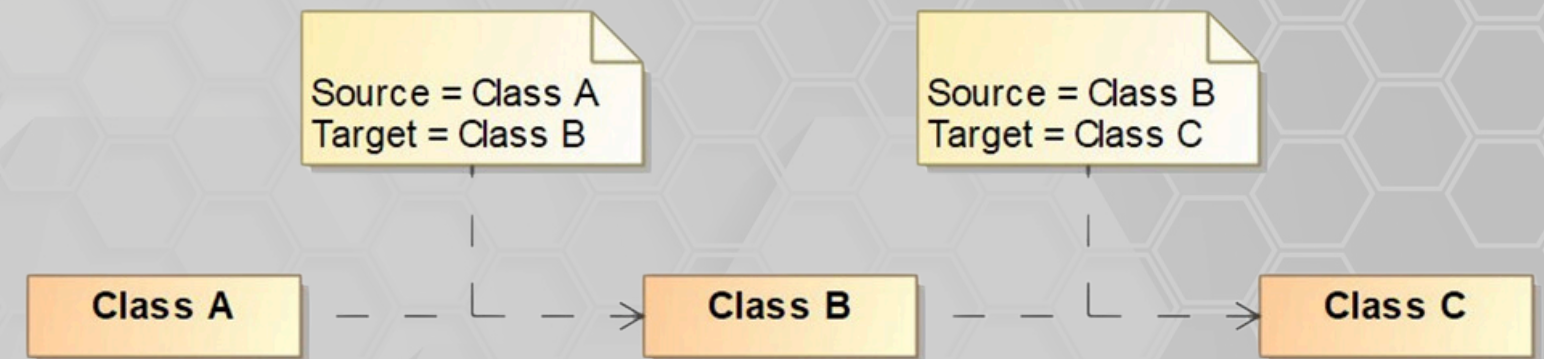
Find, Test, and Filter

Find, Test, and Filter Operations enable model searches, refinement of lists, and property and type evaluation. Nested Operations allow multiple operations to be combined.

This Module Covers:
- Nesting Operations
- Operations (Definition & Usage)
  - Find
  - Filter
  - Type Test
  - Property Test
- Usage Examples
  - Smart Packages
- Generic Tables with Custom Scope
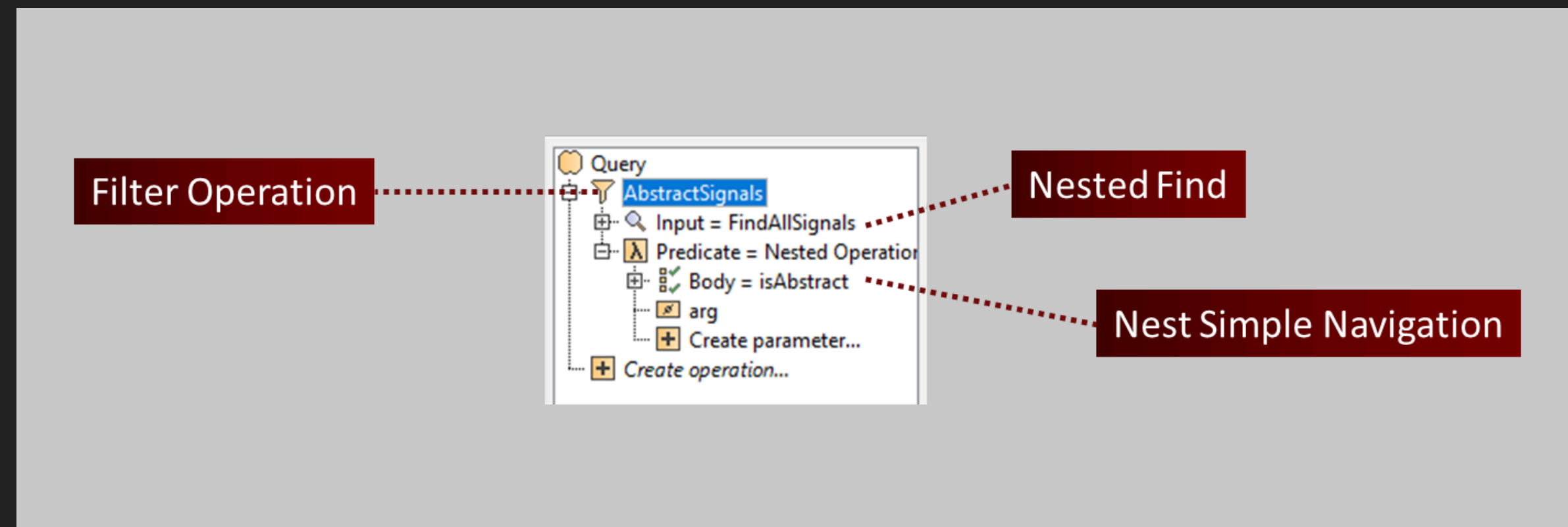
Values & Operations
FROM MODEL
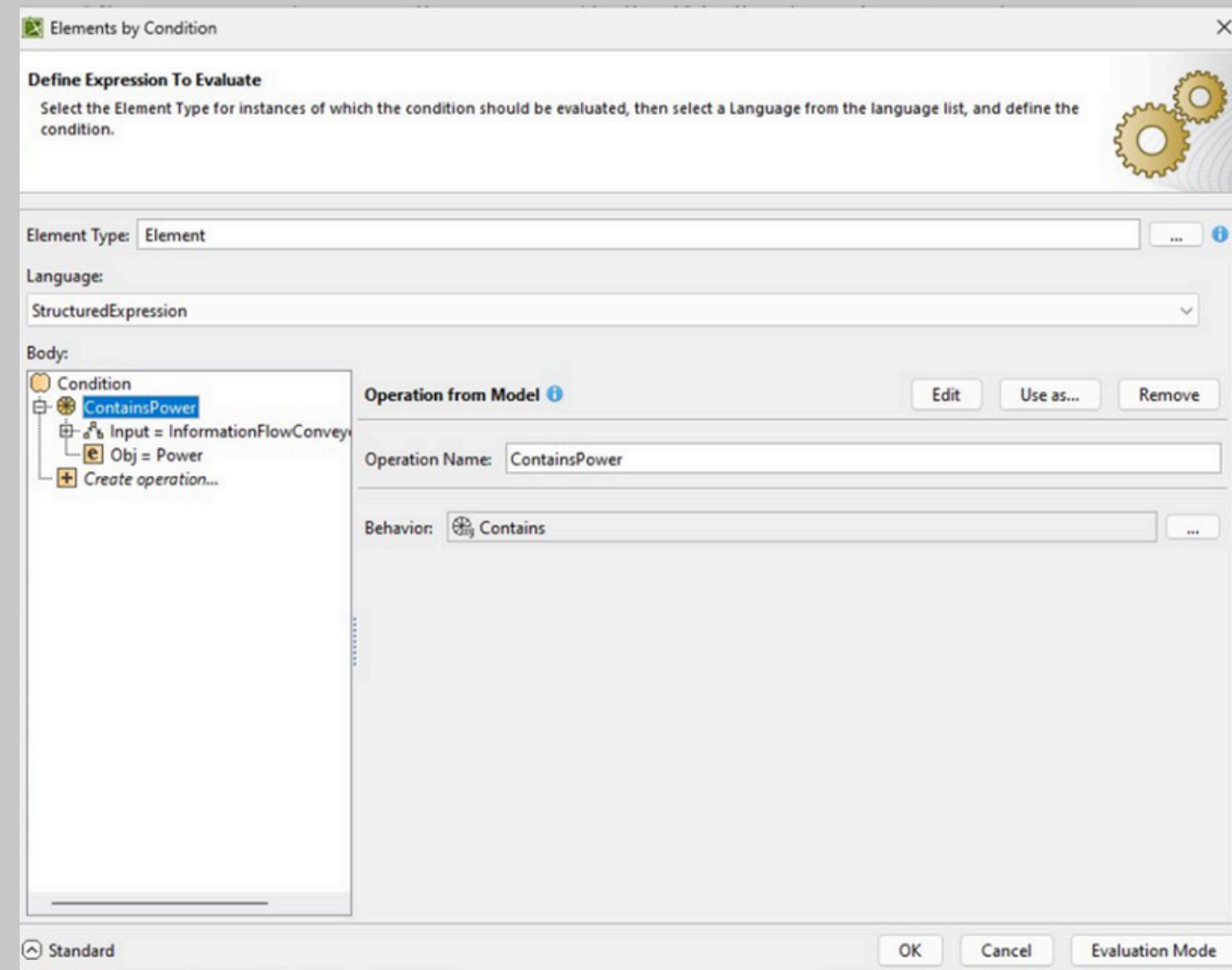
Value & Element Operations allow users to choose specific elements or elements with specific values. Collections combine operations, and Operations from Model allow for the execution of Opaque Behaviors.
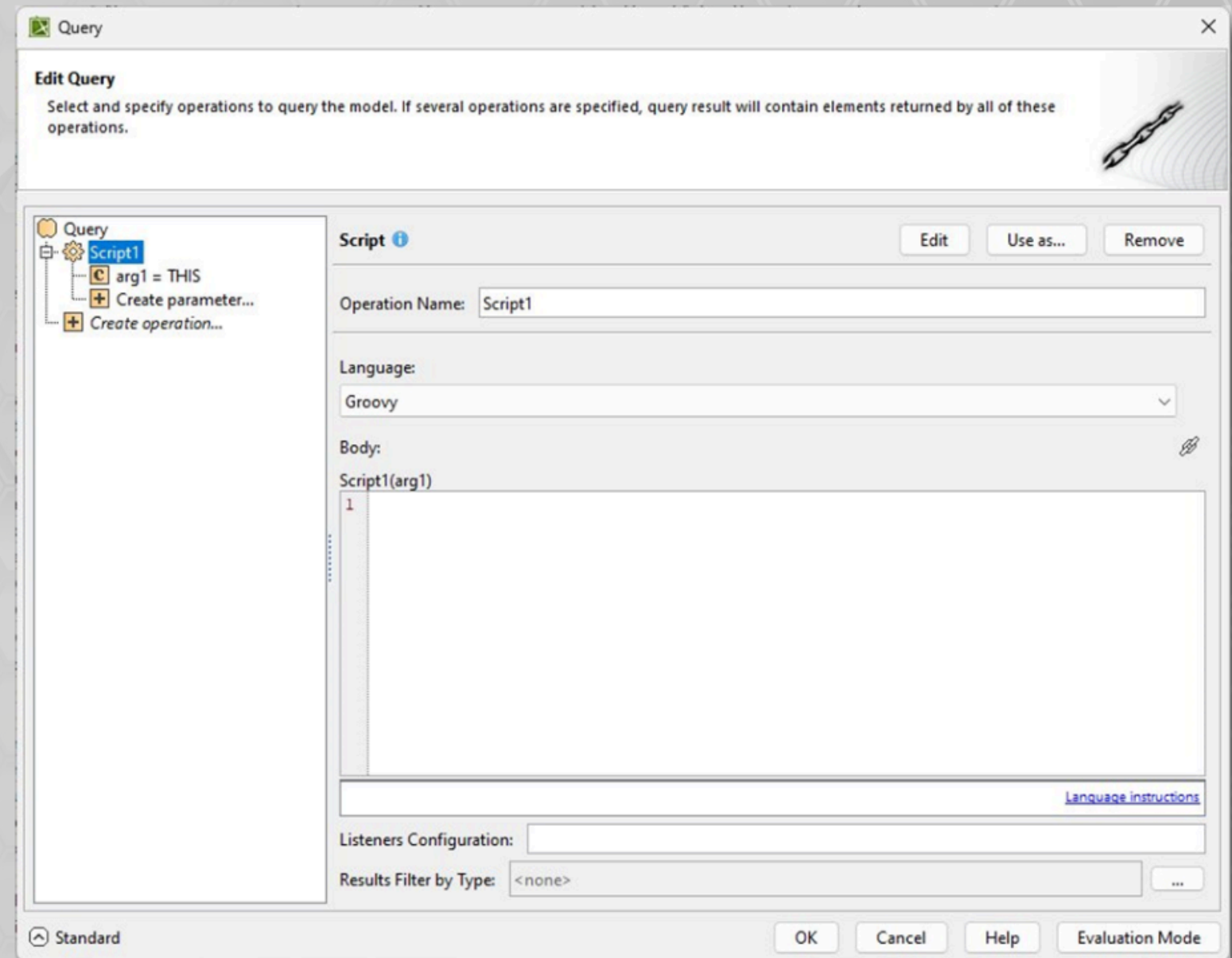
Within this module we cover:
- Values
  - Primitives
  - Element & Collection
- Operations from Model
  - Definition
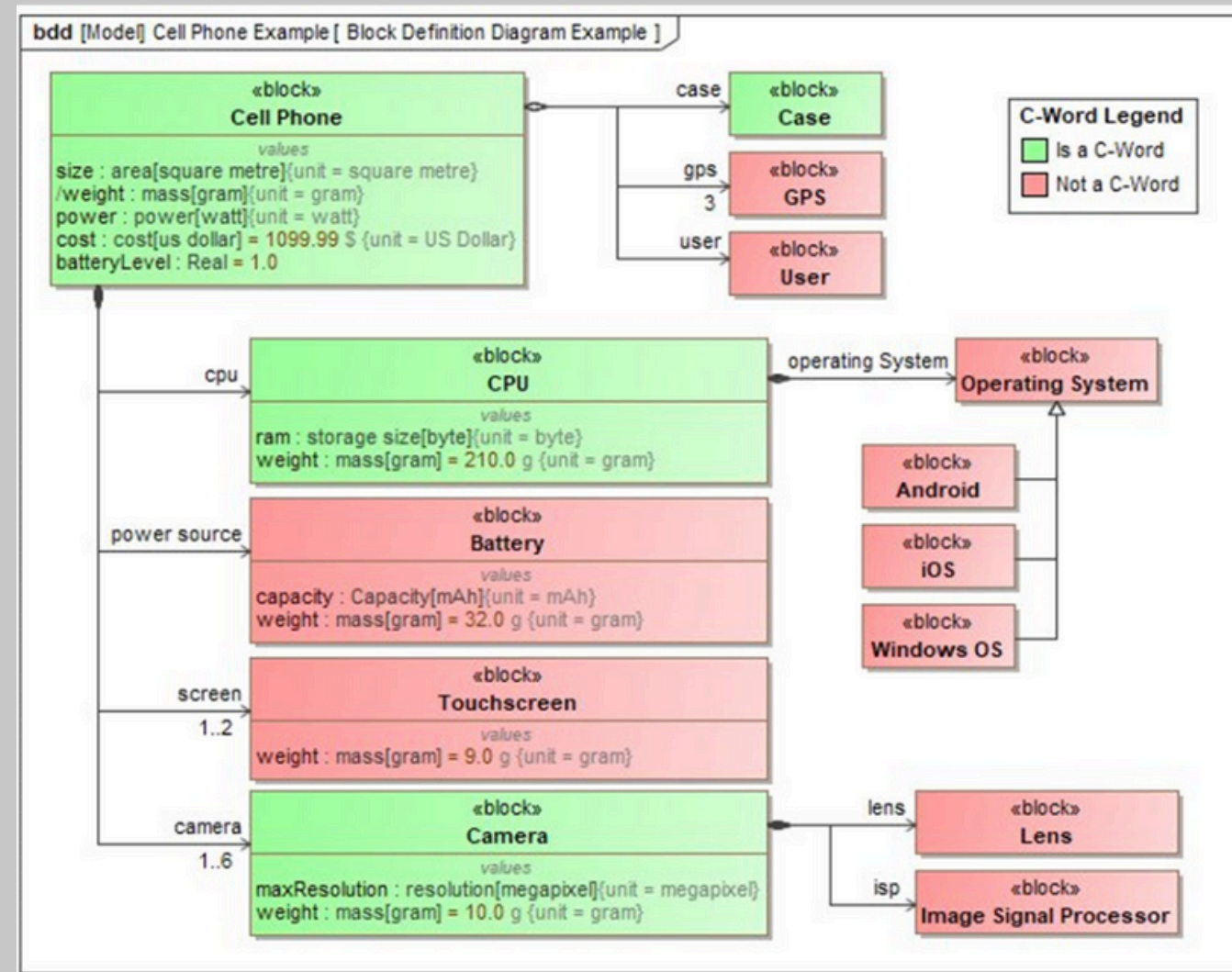 - Usage
- Built-In Operations

SCRIPTS

Script operations allow the execution of inline expressions containing one or more parameters in several supported languages.

This module covers:
- Script Operation
  - Overview
  - Usage
- Supported Languages

Applications in MAGICDRAW

Structured Expressions are widely utilized in diagrams, legends, smart packages, and validation rules to ensure traceability, present diverse data types within a single diagram, group related model elements, and automatically identify potential issues in the model.

Within this module we cover:
- Generic Tables
- Dependency Matrices
- Relation Maps
- Smart Packages
- Dynamic Legneds
- Validation Rules

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