

Standard Business Reporting

Australian Taxation Office

C# Implementation Guide

Date: 5th Dec 2024

Status: Final – suitable for use

* This document and its attachments are **Official.**

 For further information or questions, contact the SBR Service Desk at [SBRServiceDesk@sbr.gov.au](mailto:SBRServiceDesk@sbr.gov.au) or go to [Online Services for DSPs](https://developer.sbr.gov.au/portal/servicedesk/customer/portal/1) or [DPO@ato.gov.au](mailto:DPO@ato.gov.au) if unable to use Online Services.

VERSION CONTROL

| **Version** | **Date** | **Description of changes** |
| --- | --- | --- |
| 1.2 | 05.12.2024 | Significant rewrite of document to align with new code structure. This includes detailed descriptions of the new Ato.CD.Inbound.Shared project and impacts on each service specific implementation. |

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# **Introduction**

## Purpose

This document explains high level C# code implementation for the validation rules and cross form rules.

## Audience

The audience for this document is any organisation that will be building any ATO SBR services into their products. Typically this will be software application developers.

# **C# Package structure**

## C# Package Folder Structure

C# publication package has the following folder structure for all service interactions apart from CHTWTHHLD-BEN 2018.

… **<ServiceName>2025**

…… Properties

…… Validation

………..CrossForm

…… Ato.CD.Inbound.<serviceName>.csproj

…… Ato.CD.Inbound.<serviceName>.sln

…… packages.config

…… ReadMe.txt

### Example: TRT 2025 service

… **TRT2025**

…… Properties

…… Validation

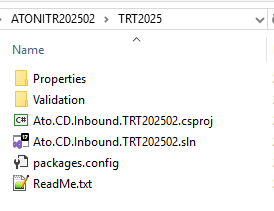
………..CrossForm

…… Ato.CD.Inbound.TRT201902.csproj

…… Ato.CD.Inbound.TRT201902.sln

…… packages.config

…… ReadMe.txt



**Properties**: Visual Studio property file

**Validation**: C# Validation code files

**CrossForm**: C# CrossForm rule files for the service. Schedule/Child service will not have CrossForm folder.

**Ato.CD.Inbound.TRT202502.csproj**: .net project file

**Ato.CD.Inbound.TRT202502.sln**: .net solution file

**packages.config**: Lists dependent external libraries (such as Microsoft library System.Collections.Immutable) that are required to compile the solution, if necessary. This file helps support native NuGet.org package restores from Visual Studio.

**ReadMe.txt**: Read me file for the solution compile and build.

## Ato.CD.Inbound.Shared Structure

The Ato.CD.Inbound.Shared contains C# class files and Xbrl and XML schemas that are shared across multiple service interactions. These were previously located under each service folder. This project is configured to be opened concurrently with each specific service solution within this code package.

Below is the folder structure for Ato.CD.Inbound.Shared.

… **Ato.CD.Inbound.Shared**

…… 2017

…… 2018

…… 2019

…… 2021

…… 2022

…… 2023

…… 2024

…… 2025

…… Helpers

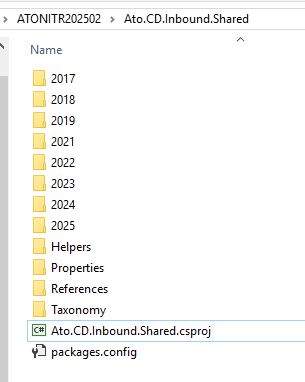
…… Properties

…… References

…… Taxonomy

…… Ato.CD.Inbound.Shared.csproj

…… packages.config



**{YYYY}\{ServiceName} e.g. 2017\CGLS**: These folders contain each services Entity and Consumer classes, along with an XML schema for XML services.

**Helpers**: Contains ‘helper’ classes and methods that are referenced in other C# classes within each service.

**Properties**: Visual Studio property file

**References**: Shared class files required for each solution build

**Taxonomy**: Xbrl taxonomy files for each service

**Ato.CD.Inbound.Shared.csproj**: .net project file

**packages.config**: Lists dependent external libraries (such as Microsoft library System.Collections.Immutable) that are required to compile the solution. This file helps support native NuGet.org package restores from Visual Studio.

# **C# Code implementation**

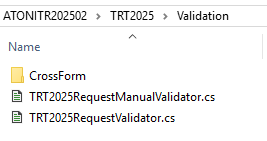
## Service/Form VR implementation

Package contains following C# code files used to implement the Service/form validation rules.

<**Service**>RequestManualValidator.cs (optional if there are no manual rules)

<**Service**>RequestValidator.cs

### Example: TRT 2025 service



## Cross Form VR Implementation

Package contains following C# code files used to implement the Cross Form validation rules.

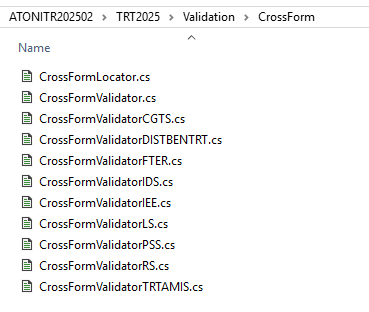
**CrossForm**

….. CrossFormLocator.cs

….. CrossFormValidator.cs

….. CrossFormValidator<childform>.cs

### Example: TRT CrossForm C# Validation



CrossForm validation has been reconfigured to use common interfaces and classes from the Ato.CD.Inbound.Shared project. This has been noted in *italic text* where applicable.

**Schedule.cs:** The Schedule class contains the names of all schedules. *This is located in Ato.CD.Inbound.Shared.*

**CrossFormExtensions.cs:** Certain CrossForm rules require access to a schedule’s contexts. The CrossFormExtensions class acts as facilitator for building up a List of contexts. Each context added to the list of contexts is a struct. Structs are value types introducing less overhead than classes. The CrossFormExtensions class exposes a single Extension Method that can be consumed in a fluent manner. *This is located in Ato.CD.Inbound.Shared.*

**CrossFormLocator.cs**: The CrossFormLocator class is a Service Locator implementation. It allows for dynamic type resolution and polymorphic invocation of CrossForm validation by calling the ValidateCrossFormRules method on ICrossFormValidator implementers.

**Example**: TRT has CGTS, LS, PSS, FTER, IEE, RS, TRTAMIS and IDS as schedules



**CrossFormValidator<childform>.cs:** ContainsCrossForm validation rules associated with each specific schedule (CGTS, LS, PSS, FTER, IEE, RS, TRTAMIS, IDS). Each CrossFormValidator<childform> class is required to implement the *ICrossFormValidator* interface**.**

**ICrossFormValidator.cs**: The ICrossFormValidator Interface acts as a contract, which is required to be implemented by all schedule CrossForm Validators (CrossFormValidator<childform> classes). Having this interface in place allows for dynamic type resolution and polymorphic invocation of CrossForm validation rules. It further facilitates implementation of the Service Locator. *This is located in Ato.CD.Inbound.Shared.*

**CrossFormValidator.cs:** This class is not anICrossFormValidatorimplementerand nor is it part of the Service Locator. CrossForm VRs that require access across multiple schedules, or where COUNT(SCHEDULE) = 0, must be implemented in the CrossFormValidator class. Example of such rules are shown below

1. Example of VR requiring access across multiple schedules

VR.ATO.TRT.432044

IF (COUNT(SCHEDULE = "PSS") > 0) AND ([TRT49] <> SUM([PSS18]))

RETURN VALIDATION MESSAGE

ENDIF

1. Example of VR checking (COUNT(SCHEDULE) = 0)

VR.ATO.TRT.432042

IF [TRT133] > 10000 AND [TRT44] <> TRUE AND (COUNT(SCHEDULE = "CGTS") = 0)

    RETURN VALIDATION MESSAGE

ENDIF

### Example of the TRT parent form implementing Cross Form C# validation

static List<ProcessMessageDocument> ValidateAssociatedDocuments(BusinessDocument crossFormDocument)

{

// contains error messages returned by each CrossForm validator

var returnMessages = new List<ProcessMessageDocument>();

// Note: that CrossForm C# Validation requires that the ConsumedReport property

// have been set for the parent and all its attached schedules

TRT2025 consumedReport = (TRT2025)crossFormDocument.ConsumedReport;

// Check if any schedules are attached to the parent form

if (crossFormDocument.ChildDocuments != null)

{

// foreach schedule…

     foreach (BusinessDocument childDocument in crossFormDocument.ChildDocuments)

     {

// locate the CrossForm Validator class for this schedule.

// (uses the Service Locator to dynamically load each schedule validator)

         ICrossFormValidator iCrossFormvalidator = CrossFormLocator.LocateCrossFormValidatorFor(childDocument, consumedReport);

// polymorphically execute the CrossForm Validator for this schedule and append return messages, if any

         returnMessages.AddRange(iCrossFormvalidator.ValidateCrossFormRules());

}

}

// The CrossFormValidator class contains CrossForm VRs that require access

// across multiple schedules, or where COUNT(SCHEDULE) = 0

// instantiate an instance of the CrossFormValidator class

CrossFormValidator crossFormValidator = new CrossFormValidator(consumedReport, crossFormDocument.ChildDocuments);

// execute the VRs located in the CrossFormValidator class and append return messages, if any

returnMessages.AddRange(crossFormvalidator.ValidateCrossFormRules());

// return List of error messages

return returnMessages;

}

# **Previous Version Control**

| **Version** | **Date** | **Description of changes** |
| --- | --- | --- |
| 1.1 | 18.04.2019 | Updated the document to align with the latest version of ATO's documents/standards. |
| 1.0 | 31/10/2018 | Tax Time 2019 code publication package implementation Overview. |