COMTRADE
SYSTEM INTEGRATION

Whitepaper

CRIMS – Credit Impairment Management System

Modern Solution for IFRS 9 Impairment

Banks are in the business of taking credit risk: managing that risk is critical for bank viability.

The IFRS 9 impairment standard introduced unprecedented complexity in banking and altered the fundamental nature of how credit default risk is calculated. To overcome this challenge, banks need a highly interactive solution that enables seamless process/workflow configuration, calculation parametrization and rich management involvement overlay.

During the current uncertainty resulting from the COVID-19 pandemic, a need for a modern impairment solution is stronger than ever, underpinned by the recent IASB respond to questions regarding IFRS 9 application. The IASB reinforced that IFRS 9 doesn't provide bright lines nor a mechanistic approach in accounting for credit impairment, requiring from banks new management judgement application with a dynamic approach that can determine ECLs in different circumstances.

Comtrade came up with a solution: Credit Impairment Management System (CRIMS).

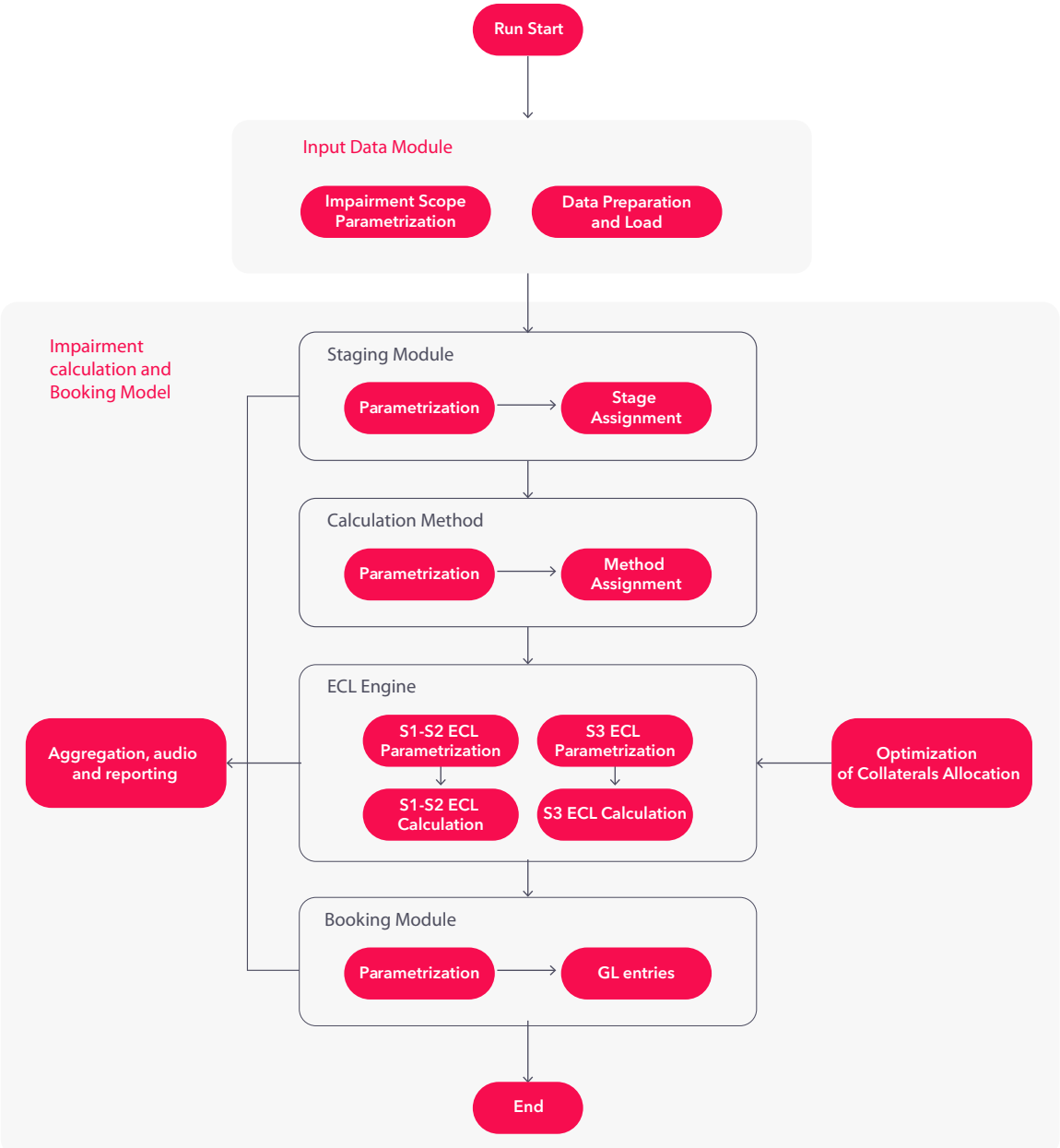
What Is CRIMS?

CRIMS is a modern Risk, Finance and Management solution, designed to solve problems inherent in a complex Credit Impairment measurement, management and decision-making. Comtrade's CRIMS has been developed through our work with Teir-1 Serbian bank and is designed around a set of core principles:

- → **IFRS 9 compliance**, as an opportunity to improve the risk management of banks' credit business,
- → **Flexible architecture**, with a forward-looking view to the evolving ECL practices and modelling,
- → **Easy collaboration** across Risk, Finance and Management teams,
- → **Seamless cooperation** between data management, models, methodologies and front-end
- → **High interaction**, with management overlay to apply judgment through fully auditable overrides,
- → **User-oriented** process management to optimize and automate repeatable calculations.

How Does CRIMS Work?

The following figure summarizes a general process and core set of CRIMS modules used to estimate credit impairment under the IFRS 9 standard:



→ Note that this process flow diagram highlights only key steps and subprocesses: it doesn't depict an entire set of application features.

Input Data Module provides data management functionalities to:

- → capture the current information required to estimate credit losses for each of the exposures in the portfolio (balances, commitments, PD/LGD/EAD profiles, cash flow profiles, discount rates, etc.),
- → assign exposures to segments with similar risk characteristics: it ensures that different models can be applied for exposures with different credit risk characteristics during ECL calculation.

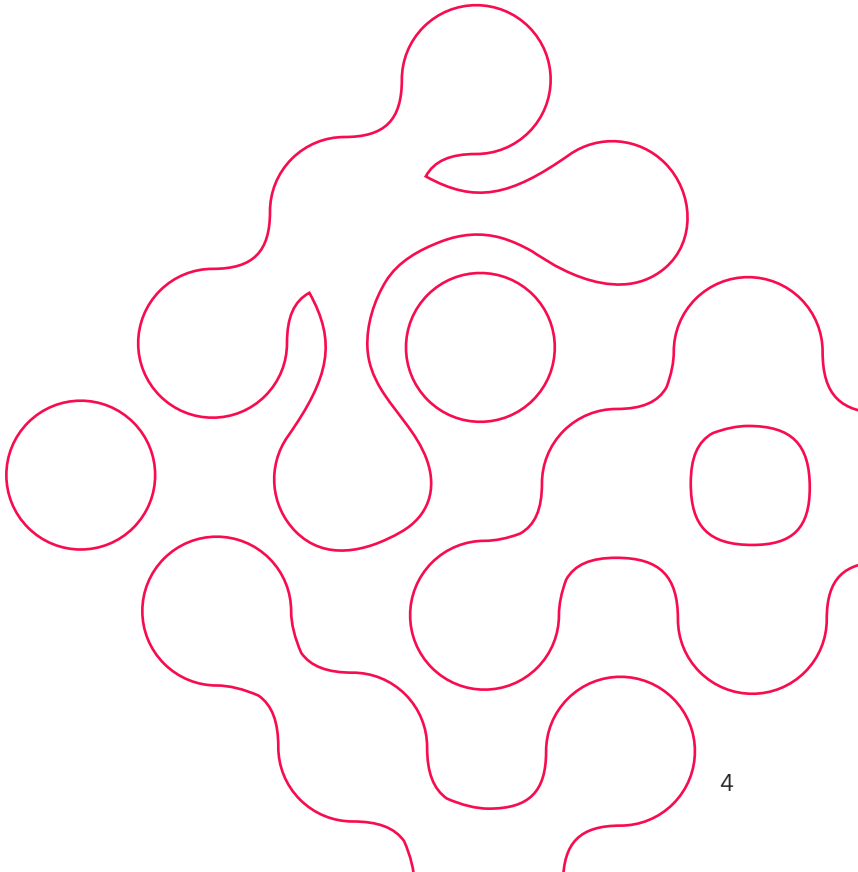
CRIMS provides the following components for the configuration and assessment of credit impairments:

- → Stage assignment,
- → Calculation method assignment,
- → ECL engine,
- → Collateral allocation (Optional)

Impairment Calculation and Booking provides capability to integrate all the loan accounting and risk profile data into a single system for impairment calculations and reporting. The result of the credit impairment process in CRIMS are:

- → Debit/credit entries,
- → Data marts with impairment calculations

These data marts support creation of customized reports, detailed calculation process audit and impairment change root-cause analysis.



Staging Module fulfils the IFRS 9 requirement to quantify credit risk impairments according to credit risk levels, by distinguishing the following exposures:

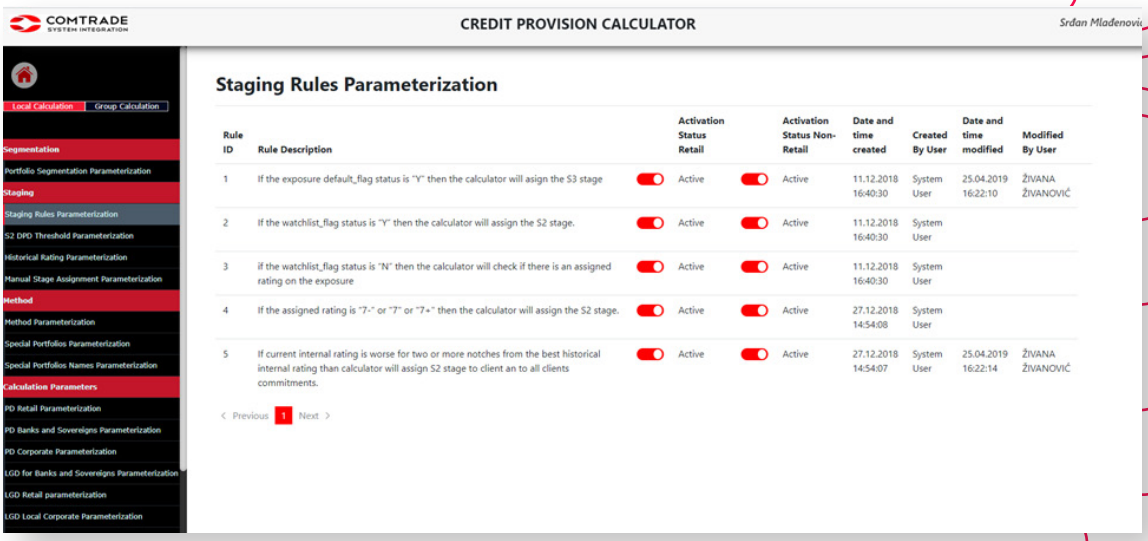
Stage 1: exposures that didn't suffer a significant deterioration from their origination and whose ECL will be estimated for a one-year period or for their lifetime, if they have less than a one-year residual maturity,

Stage 2: exposures that suffered a significant deterioration from their origination without defaulting, whose ECL will be estimated for their lifetime,

Stage 3: defaulted or non-performing exposures, whose expected loss will be estimated for their lifetime.

- → This component also supports:
- → Precise qualitative and quantitative rules to identify significant deterioration in credit quality and exposure stage assignment,
- → User interface for rules management.

→ Illustration of Staging Rules Parametrisation



In the next step of ECL calculation, methods are assigned to the combinations of:
a) Segment stage,
b) Impairment stage.

CRIMS enables three out-of-the-box **ECL calculation methods:**

- → **Advanced method**, based on the application of $PD_{IFRS\ 9}$ and $LGD_{IFRS\ 9}$ term structure to the discounted exposures of an exposure projected into the future - by time buckets. Behavioural cash flow dynamic is captured though a separate drawdown, CCF, and prepayment model curves,
- → **Markov chains/roll rate method,**
- → **Fixed impairment rate method.**

Within each method, CRIMS robust ECL calculation engine provides **a flexible suite of market-standard credit risk models and parameters**, that could easily be accommodated to IFRS 9 modelling frameworks of any bank. Ready-to-go models and parameters are **available across various credit segments:**

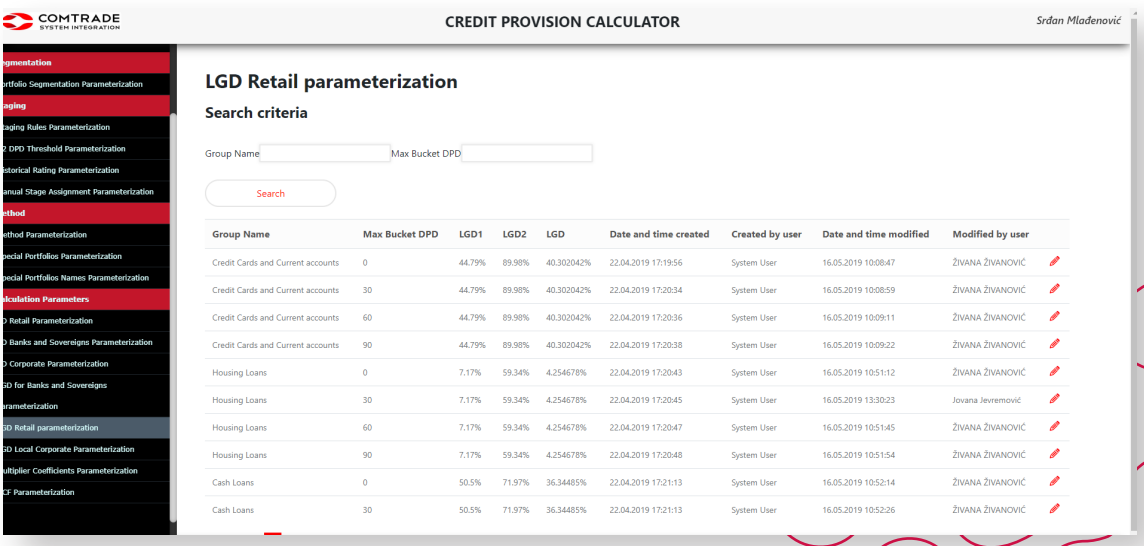
- Corporates
- SMEs
- Banks and sovereigns
- Specialized lending
- Consumer lending
- Mortgages

Different models and parameters are assigned to the exposures through a user-friendly interface, based on a set of drivers, such as portfolio name, product type, customer type and stage.

For each loan maturity, **CRIMS model repository** provides the following curves:

- → **PD term structure curves:** reflect PIT forward-looking PD curve in a base scenario,
- → **LGD term structure curves:** determine PIT workout LGD in a base scenario, based on the probability of a cure, cost of cure, and the loss given non-cure submodels,
- → **Credit conversion factor curves,**
- → **Prepayment/survival curves:** an estimation of exposure reduction over time, related to contractual and anticipated repayments,
- → **Drawing curves:** an estimation of exposure annual drawing rate, off-balance sheet.

→ Illustration of LGD Retail Parametrisation



Management judgment, model risk, sector risk and forward-looking macro-economic effects are captured trough a **multiplier coefficient overlay.** Four different multiplier coefficient types are defined to determine the overlay:

- → Add on/off model coefficient,
- → Multi-scenario coefficient,
- → Expert coefficient,
- → Sectorial coefficient.

Collateral module supports cover value adjustments for collateral and credit risk mitigants, based on a user-defined set of haircuts. Adjusted values are than optimally allocated to the connected exposures, with a goal to minimize overall level of impairment loss. Allocation can be done using either simple set of allocation rules or with the help of modern numerical optimization algorithms.

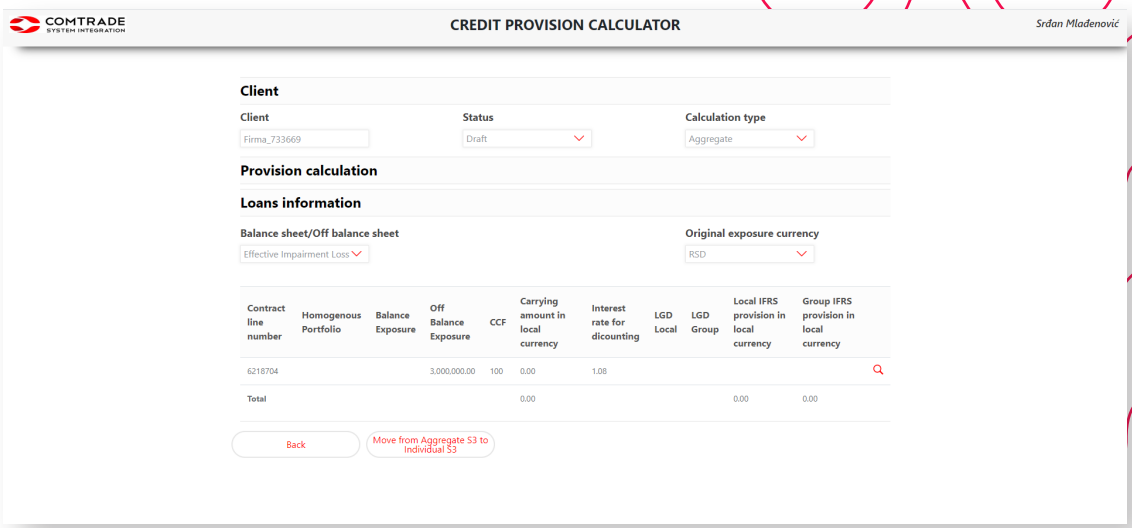
What Is CRIMS Stage 3 Module?

An extremely important aspect of credit impairment calculation, that's frequently downplayed, ignored or even completely omitted by most of the current solutions on the market, is related to the **IFRS 9 Stage 3 Calculation and Management for credit-impaired exposures.**

Vendor's focus was mostly attracted by the novelties in the Stage 1 and Stage 2, despite the fact that the Stage 3 portfolio has by far the largest impact on overall impairment levels.

CRIMS Stage 3 module brings the power of sophisticated business process modelling capabilities that seamlessly orchestrate communication and data exchange between credit, finance and management function.

The first step in Stage 3 calculation is to assess whether the credit exposure is individually significant or not. Using materiality threshold parametrization functionality, users assign the threshold levels on credit portfolio segments. CRIMS supports assessment of impairment loss for significant cases, on both client and credit facility level. For homogenous portfolios of non-significant impaired exposures, solution provides built-in methods for statistical impairment assessment on an aggregate level.



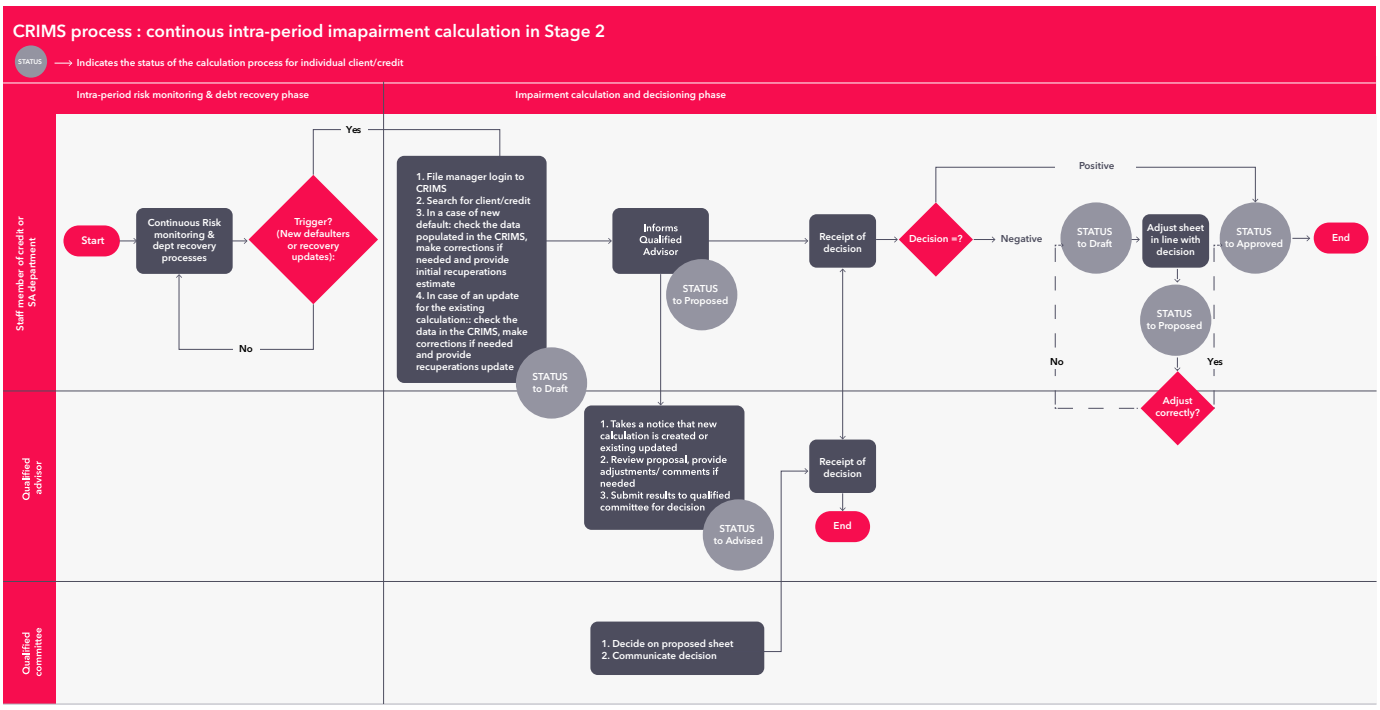
In order to lower an end-of-period burden of assessments update for each impaired case, the business process management tool enables creation of two separate sub-processes:

1

Inter-period continuous sub-process: CRIMS calculation sheets are created or updated during a particular time period (month or quarter), based on the specific process triggers,

2

End-of-period sub-process where all already existing problem cases are updated and impairments are reviewed with most recent information about future expectations



→ Illustration of S3 Impairment Calculation on an Individual Level

Different process setups can be easily designed and tested, followed by the automatic creation of graphical user interfaces.

CRIMS Stage 3 module natively supports **identification, calculation, booking and reporting of:**

- → **POCI exposures,**
- → **Forborne/modified exposures**,
- → **Interest income**, due to unwinding of discount effect.

CRIMS Stage 3 module can be implemented as part of an integrated CRIMS solution or as a stand-alone module, fed with relevant data from bank sources.

Reporting module is customizable for bank's preferences, and should be based on the following reporting templates:

- → IFRS 9 financial disclosure reports,
- → RBA FINREP 12 reports,
- → Management and portfolio reporting,
- → Root-cause (contribution) analysis of changes in the impairment levels.

A complete audit trail is generated for each exposure provided to the CRIMS, for every ECL calculation method or stage. The main objective of this audit trail is to provide all available information on the ECL calculation process, from the collection of the data to the final ECL results.

Audit trail is generated for the following calculation steps:

- → Staging,
- → Method assignment,
- → Model assignment,
- → IFRS 9 exposure calculation,
- → A one-year and lifetime ECL calculation.

What Are the Key Benefits of CRIMS?

An ever-increasing unpredictability of the credit business environment demands very fast and agile responds from banks, as well as their continuous adaptation. Comtrade's CRIMS provides:

- → Highly interactive and flexible solution for impairment process management,
- → Industry-leading suite of impairment model templates and configurable methodologies,
- → Auditable management judgment overlay,
- → User-oriented process management tool, that synchronizes coordination between the key process stakeholders,
- → Mitigation of Stage 3 operational risk costs,
- → Time-saving automation, resulting in happier employees and higher retention rates.

COMTRADE
SYSTEM INTEGRATION

Contact us
Email: crims@comtrade.com
Phone number: +381 11 201 5600
www.comtradeintegration.com