Oxford Semantic Technologies

RDFox v7.5a upgrade instructions

The RDFox v7.5a patch release has been published to fix, among other issues, a rule serialization bug in which rules installed in a data store may be miss-recorded, leading to invalid reloading from persistence. This affects both user added rules, and rules added to the store by importing axioms.

As with other patch releases, v7.5a is a drop-in replacement for the v7.5 release, meaning that it is fully compatible with v7.5 in terms of persistence (no upgrade step is required) and all APIs. Users of v7.5 are advised to upgrade to RDFox v7.5a as soon as possible. This can be done by restarting your server with RDFox v7.5a, and following the advice detailed below. Users of v7.4 and earlier, should follow the migration guides for v7.5 and earlier releases – they do not need to follow the advice below as they are unaffected by this issue.

1. Detailed description of the rule serialization bug

The rule serialization bug is present in RDFox version v7.5 only.

The bug occurs when an RDFox datastore contains a rule that uses the `IN` or `NOT IN` operators satisfying one of the following criteria:

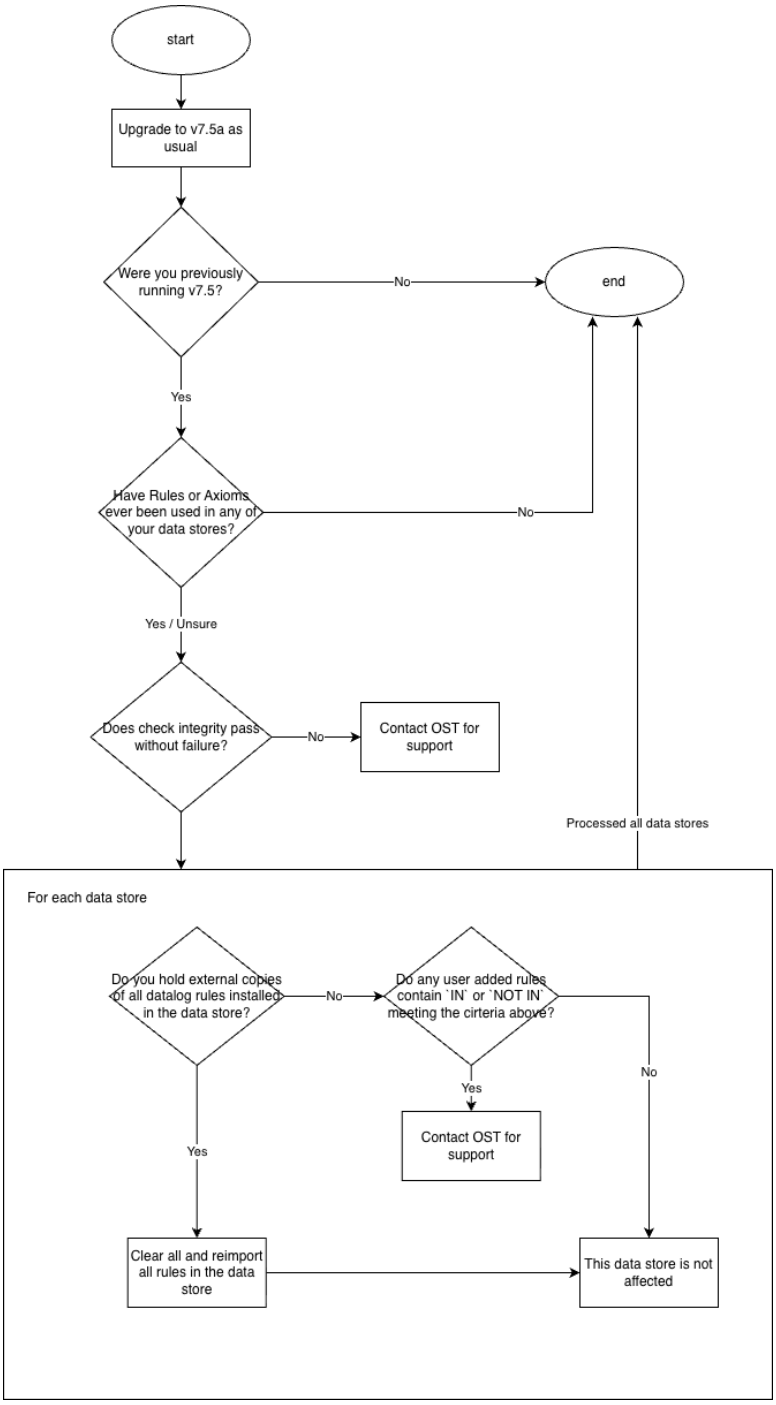
1. The first argument of the `IN` or `NOT IN` is not a simple term or variable but is a complex equation which requires bracketing to be valid/correct. E.g. `(?X != ?Y) IN (...)`
2. The entire `IN` or `NOT IN` itself is used as part of a larger equation and it must be bracketed. E.g. `?X != (?Y IN (...))`

In this situation, the rule would be serialized without the necessary brackets, in many cases leading to a syntactically valid, but semantically distinct, Datalog rule. This serialization is used not only for rule exportation but also for RDFox's data store persistence.

When an RDFox instance imports axioms from its tuples it internally generates Datalog rules from those axioms. Axioms can produce rules which are affected by this bug. For example, the `DataPropertyRange` and `DataPropertyDomain` axioms can include the `IN` keyword which can fall under criterion 2 above. RDFox v7.5a has been updated so that the check server integrity functions can detect when axiom added rules have been corrupted in this way.

2. Recovering from the rule serialization bug

RDFox v7.5a can load server directories populated by v7.5. However, rules incorrectly written to persistence by RDFox v7.5 will not automatically be repaired. Please use the following flowchart to determine what steps to take to ensure your server is free of any such incorrect rules.



Note:

- The “Clear all and reimport” step can be done inside a single transaction to reduce rematerialization.
- The “Do any user added rules contain the `IN` ….” step can be achieved by exporting all rules and searching in the output for instances of the “`IN`” keyword, investigating whether the bracketing is as expected for the original rule meaning.

3. Requesting additional support

If you encounter any problems following the guidance, or you have any questions about the rule serialization bug or any of the other changes in v7.5a please contact support at Oxford Semantic Technologies via your usual channel.