Release Notes for SAS® Fraud Management 6.1_M0, Hot Fix 1

Description	Component	Summary and Business Impact	Test Scenario

When you import a rule export file that contains a large number of rules, the import process fails.	RULES	**Summary:** You can export many rules to a single XML file. When you import that file, the following application error might occur:
		`Unable to acquire rule fired slot with identifier` *`rule-id`* `and multi-org key` *`node-key`*`.`
		When this error occurs, the Import Results Report also contains syntax errors:
		`Syntax scan found` *`number`* `errors during import`
		This issue occurs when the number of exported rules exceeds the number of rows in the FCM_FIELD_DEFINITION table in the System of Record (SOR) database.
		Business Impact: You cannot import a rule file that contains many rules. To work around this issue, export and import the rules in smaller batches.
			After you apply this hot fix, the rule import process succeeds, and it is not limited by the size of the FCM_FIELD_DEFINITION table.

When you test a rule in Rules Studio, client input variables are not retrieved.	RULES	**Summary:** In the coding folder, the rule test does not retrieve the values of client input variables, and those values are not displayed on the **Related Rows** tab. If the rule firing is conditional on the client input variable, then the rule does not fire during the test. To work around issue, use rule estimation instead. **Business Impact:** Rule writers cannot use the rule test to evaluate rules that fire based on the values of client input variables.	After you apply the hot fix, the values of client input variables are retrieved and used when you test rules in the coding folder.

Description	Component	Summary and Business Impact	Test Scenario
When you edit rules, there is no syntax checking for the LENGTH and ARRAY statements and the SUBSTR function.	RULES	**Summary:** Syntax checking in the editor is helpful for rule writers when you are developing new rules. However, the following valid statements and function are not included in the syntax checking: • LENGTH • ARRAY • SUBSTR **Business Impact:** Rule writers who are not familiar with the syntax of these statements have to see the documentation.	After you apply the hot fix, the rule editor has syntax checking for LENGTH, ARRAY, and SUBSTR.
You cannot use the SIN, COS, STD functions in rules.	RULES	**Summary:** Rules Studio does not support the use of the SIN, COS, STD functions. **Business Impact:** Rule writers cannot use these functions.	After you apply the hot fix, you can use SIN, COS, and STD functions in rules.
Performance might be slow for the queries that are used in rule estimation.	ESTIMATION	**Summary:** Queries that are used by rule estimation might not perform well because they use dynamic Structured Query Language (SQL). **Business Impact:** Rule writers are less productive because it takes longer for them to develop new rules or modify existing rules so that rules can identify more fraudulent transactions.	After you apply this hot fix, static queries might perform better. As a result, estimation performance might improve.
The transaction scope for an estimation is not limited to the multi-organizational level of the selected rule(s).	ESTIMATION	**Summary:** A query run in rule estimation reads more data from the Transaction Data Repository (TDR) database than is required for the selected rules. Instead of limiting the data to the multi-organization of the rules, the tenant root is used. **Business Impact:** Estimation might be slower than expected. Slow performance affects the customer's ability to respond quickly to new types of fraudulent transactions.	After you apply this hot fix, the estimation process scopes transactions based on the multi-organization of the rules that are involved.

Description	Component	Summary and Business Impact	Test Scenario
When you include user or client input variables in the analyst grid, the grid is not displayed for an alert.	ANYLSTSWORK	**Summary:** The transaction grid is not displayed for the selected alert if the grid columns include user variables or client input variables. An error is written to the web application log: `ERROR ApplicationExceptionHandler ============================== SAS® Fraud Management ============================== com.sas.finserv.common.ApplicationException: Unexpected values encountered during processing at com.sas.finserv.creditfraud.fcm.web.action.EntityActions.viewEntityTransactions(EntityActions.java:387)` **Business Impact:** Analysts cannot view user values or client-input variable values for transactions when you are working with an alert.	After you apply the hot fix, the transaction grid for an alert displays when user variables or client input variables are included in the grid.
You cannot import a rule from a prior SAS Fraud Management release if the rule uses fields that no longer exist.	RULES	**Summary:** If you export a rule from an earlier release of SAS Fraud Management and then you try to import it in a later release, the following error occurs in the web-application log: `ERROR ApplicationExceptionHandler ============================== SAS® Fraud Management ============================== java.lang.ClassCastException: com.sas.finserv.common.util.ResourceEntry cannot be cast to java.lang.Comparable` The error occurs when the rule uses a variable that is no longer available in the message API. The web-application log reports that an unexpected error has occurred in the application. **Business Impact:** If you use rule export and import processes to move rules from an earlier release of SAS Fraud Management to a later release, this issue might cause the import process to fail.	After you apply the hot fix, you can import rules from an earlier application release that refer to API fields that no longer exist. For rules that use an old field, the Import Rules Report includes this message for that field: `SPECIAL PROCESSING REQUIRED FOR "field-name"- May require complex mapping logic.`

Description	Component	Summary and Business Impact	Test Scenario
Segment-variable data in the User Authorization Request (RUA) is not displayed in the Related Rows grid.	RULES and EXPLORE	**Summary:** When RUA variables are added to the **Related Rows** columns on the **Explore** tab and in the rule editor, the values are not displayed. **Business Impact:** Analysts have difficulty servicing alerts because they cannot validate the transaction data without reviewing the RUA values.	After you apply the hot fix, the RUA variable values are displayed in the **Related Rows** grid on the **Explore** tab and in the rule editor.
When you click a row in the Frequency of Rules Fired report, the entities that are associated with the selected row are not displayed.	REPORTS	**Summary:** On the **Reports** tab, the Frequency of Rules Fired report provides a summary of the alerts that are created by each rule for the date range that is included in the report. You should be able to click each rule to show details of the entities that are affected. However, the detail page does not list the entities. Also, the rule name is encoded as HTML. **Business Impact:** The Frequency of Rules Fired report cannot be used to view the entity details for fired rules. Only the summary page works.	After you apply the hot fix, the entity detail is displayed for the selected rule on the Frequency of Rules Fired report. The rule name is properly formatted in the header section of the detail page.
Oracle creates multiple versions of prepared statements.	ODE	**Summary:** Oracle caches prepared SQL statements so that the statements can be re-used. This action provides performance benefits by reducing the amount of work that Oracle has to do to execute a statement. Sometimes, Oracle cannot use the cached statement, and it has to insert a new version of the prepared SQL statement into the cache due to parameter binding. Multiple versions of prepared statements are created by Oracle when the SAS OnDemand Decision Engine inserts data into the Transaction Data Repository (TDR) database. A new version of a statement in the Oracle Server Package Cache can be created for numerous reasons. (See your Oracle documentation). *(continued on next page)*	This hot fix does not eliminate the creation of multiple versions of prepared statements. This fix reduces the number of versions of a statement that are created by the BIND_MISMATCH type of version creation. The fix applies to prepared statements for the Transaction Data Repository (TDR) database.

Description	Component	Summary and Business Impact	Test Scenario
		Business Impact: The full benefit that might be gained by caching prepared SQL statements in Oracle is not realized.	
The timestamps in the System Routing and Performance (SRP) segment for all transactions are set to **0**.	ODE	**Summary:** The SRP timestamp fields capture times. You can use this information to determine how long the scoring engine spends processing the model and processing the rules for each transaction. However, these timestamps are overwritten. **Business Impact:** Because the SRP timestamps are overwritten, you cannot use them to determine the detailed processing time of the scoring engine. Transaction scoring is not impacted by this issue.	After you apply this hot fix, the timestamps in the SRP segment contain correct timestamp values, which are not overwritten.
Rule estimation fails with an SQL error.	ESTIMATION	**Summary:** Rule estimation fails for a rule that refers to user variables that are defined in more than one segment or to client input variables that are defined in more than one segment. On Oracle systems, the error that is displayed in the estimation log is as follows: `ERROR: ORACLE prepare error: ORA-00904: "IXX"."**********_BUILD_NUM": invalid identifier.` *(continued on next page)*	After you apply this hot fix, rule estimation succeeds.

Description	Component	Summary and Business Impact	Test Scenario

		On IBM DB2 systems, the error that is displayed in the estimation log is as follows:
		`ERROR: CLI describe error: [IBM][CLI Driver][DB2/LINUXX8664] SQL0206N "IXX*********_BUILD_NUM" is not valid in the context where it is used. SQLSTATE=42703`
		`ERROR: SQL View WORK.TRAN_VIEW_FCM_CCCA could not be processed because at least one of the data sets, or views, referenced directly (or indirectly) by it could not be located, or opened successfully.`
		Business Impact: Rule writers cannot test some rules by using rule estimation.	

Rule estimation fails when the rule uses a large number of user variables or client input variables.	ESTIMATION	**Summary:** When a rule uses a large number of user variables or client input variables, the estimation might fail. In some cases, the code that is generated exceeds the maximum length for a line. As a result, the last part of the query is missing, which causes the estimation failure.
		The error that is displayed in the estimation log is as follows:
		`ERROR: The following columns were not found in the contributing tables: column-name`
		`ERROR: SQL View WORK.TRAN_VIEW_table-name could not be processed.`
		Business Impact: Rule writers cannot test rules using estimation.
			After you apply this hot fix, rule estimation succeeds.

Description	Component	Summary and Business Impact	Test Scenario

You cannot delete a lookup list even if no rule references it.	RULES	**Summary:** If a rule that references a lookup list is saved, a record is inserted into the FCM_RULE_LOOKUP_LIST database table. If the code that uses the lookup list is removed from the rule, the record is not deleted from the FCM_RULE_LOOKUP_LIST table. As a result, you cannot delete the lookup list.
		
		The following error is displayed on the web page:
		
		`An error occurred during lookup list deletion.`
		
		`Lookup list list-name is being used by one or more rules in Testing/Production and so cannot be deleted.`
		
		`The error in the web application log is as follows:`
		`ERROR ApplicationExceptionHandler`
		`==========`
		`SAS® Fraud Management`
		`==========`
		`java.lang.ClassCastException: java.math.BigDecimal cannot be cast to java.lang.Integer`
		`at com.sas.finserv.creditfraud.rules.service.RulesServiceImpl.deleteLookupList(RulesServiceImpl.java:8678)`
		
		This issue impacts analyst lists also.
		
		Business Impact: Rule writers might not be able to delete lookup lists that are no longer referenced by rules.
			After you apply the hot fix, you can delete a lookup list that used to be referenced by a rule.

Description	Component	Summary and Business Impact	Test Scenario
You can no longer use bindings mode to connect to an IBM MQ queue manager with SAS OnDemand Decision Engine.	ODE	**Summary:** Prior to SAS Fraud Management 4.4M1, Hot Fix 3, you could configure SAS OnDemand Decision Engine to use bindings mode to connect to the IBM MQ queue manager. You configure the option in the ose.xml file by using the **`messageQueueConfig.useBindingMode`** property for the MQ queue. **Business Impact:** Without the bindings-mode option, the SAS OnDemand Decision Engine connects to the IBM MQ queue manager in client mode over TCP/IP.	After you apply this hot fix, you can configure bindings mode for connections to the IBM MQ queue manager.
You cannot export estimation results to Microsoft Excel.	ESTIMATION	**Summary:** When you view an estimation report, you can view detailed information about the transactions on which the rule fired. In earlier releases of SAS Fraud Management, you can export the transaction details to Excel. However, in release 6.1, this feature is not available. **Business Impact:** Rule writers can view the estimation results only in Rules Studio. They cannot export the detailed transaction information to Excel.	After you apply the hot fix, you can export the detailed transaction information from the estimation results to Excel.
You can select an invalid alert type for a transaction type in the rule editor.	RULES	**Summary:** When you create a rule that can fire an alert, you can choose an invalid alert type for the selected transaction type. This creates a rule that cannot be promoted successfully. Only valid alert types should be displayed in the selection list. **Business Impact:** Rule writers can create a rule with an invalid alert type, which can be a time and workflow issue for the rules writer.	After you apply the hot fix, you can choose only a valid alert type for the selected transaction type.

Description	Component	Summary and Business Impact	Test Scenario
A security scan reports that the __SFMRT cookie is missing the **`HttpOnly`** flag.	SECURITY	**Summary:** The missing **`HttpOnly`** flag in the __SFMRT cookie is considered a security vulnerability. If the **`HttpOnly`** flag is not included in the HTTP response header, the cookie can be accessed through a client-side script. As a result, the cookie becomes vulnerable to theft or modification by a malicious script. **Business Impact:** The missing **`HttpOnly`** flag on the __SFMRT cookie leaves the cookie vulnerable to unauthorized access.	After you apply the hot fix, the __SFMRT cookie is not used by the SAS Fraud Management application.
The SMH_MULTI_ORG_NODE_KEY value is not displayed in the transaction grid on the **Explore** tab.	EXPLORE	**Summary:** The SMH_MULTI_ORG_NODE_KEY value for the transactions that are listed in the **Related Rows** grid on the **Explore** tab are blank. **Business Impact:** Users review transaction data using the **Explore** tab. When data is not displayed, it might impact their ability to service alerts and test rules.	After you apply the hot fix, the SMH_MULTI_ORG_NODE_KEY value is displayed in the transaction list on the **Explore** tab.
On DB2 systems, time-field values for transactions in the **Related Rows** grid do not match the Transaction Data Repository (TDR) database.	RULES and EXPLORE	**Summary:** Time values in DB2 are not stored in Coordinated Universal Time (UTC) like other date-time values. The time values are incorrectly shifted by a number of hours, based on your time zone, before they are displayed in the **Related Rows** grid on both the Rules and Explore tabs. The values do not match the values that are stored in the TDR database. Two examples of time fields that are incorrect in the grid are the following: • RQO_TRAN_TIME • RQO_TRAN_TIME_ALT *(continued on next page)*	After you apply the hot fix, the time values are displayed correctly in the **Related Rows** grid.

Description	Component	Summary and Business Impact	Test Scenario
		Business Impact: Users see incorrect values for some time fields in transactions that are displayed on the **Rules** and **Explore** tabs. When data is not correct, it might impact users' ability to service alerts and write effective rules.	
In a multi-tenant environment, the SAS OnDemand Decision Engine sets the user-variable segment's build number incorrectly.	ODE	**Summary:** In a multi-tenant environment, the SAS OnDemand Decision Engine SAS session sets the user-variable segment's build number to the build ID of the rules file that is used to process the transaction. This build number is not set correctly. The value does not match the value in the addendum file that is used by SAS Business Orchestration Services (BOSS). As a result, processing fails for the transaction. When the failure occurs, the following error appears in the BOSS olApp.log: `Camel (SFM_OL) thread #26 - seda://logTransactionAsMap 2019-09-13 06:44:57 ERROR TransactionBackedMap - Could not decode field: v02_str_00136_016 com.sas.finance.fraud.transaction.field.Field$FieldException: build_num=50137 for segment V02 is not available (current build_num=50119). at com.sas.finance.fraud.transaction.field.TenantField.getSegment(TenantField.java:53)` **Business Impact:** BOSS cannot parse user variables in the reply from the SAS OnDemand Decision Engine after a new rules file is deployed.	After you apply the hot fix, the user-variable segment's build number is set correctly by the SAS OnDemand Decision Engine.

Description	Component	Summary and Business Impact	Test Scenario
Currency fields are not decoded correctly by the SAS OnDemand Decision Engine for UTF-8 messages.	ODE	**Summary:** For UTF-8 messages, currency and other numeric fields that are formatted in scientific notation are not stored correctly in the TDR database. As a result, the values are not correct in the transaction grids in Rules Studio and Analyst Workstation. For example, if the value for the TBT_TRAN_AMT field is 100, or 1.0 x e^2, then the value is stored incorrectly as 1.0 in the FCM_CSBF transaction table. The values are correct in the System of Record (SOR) database and in the Multi-Entity History (MEH) database. **Business Impact:** The business impact is high because currency and other numeric-field values are incorrect in the TDR. Scoring and rules processing are not impacted.	After you apply the hot fix, the currency-field values are stored correctly in the TDR database for UTF-8 messages.

The SAS OnDemand Decision Engine reports the SAS channel timeout value incorrectly.	ODE	**Summary:** The SAS OnDemand Decision Engine detects and destroys a SAS process that stops responding (either with a spinning progress indicator or with a failure). Then, the engine forks a new process to replace the destroyed process. When this occurs, the message written to the log reports an incorrect timeout value for the shared memory buffer, as shown in the following example:
		
		`INFO SLA_NOTICE 80ms SLA exceeded elapsed=10,013.3ms`
		`…`
		`failure_reason="com.sas.finance.fraud.engine.sas.SharedMemoryBuffer$Timeout: 5ms timeout waiting for a response …"`
		
		The **5 ms** timeout reported above is incorrect. The correct value is **5000 ms**.
		
		(continued on next page)
			After you apply this hot fix, the timeout value is reported correctly in the OnDemand Decision Engine log. Also, if you add the following parameters to the ose.xml file, these parameters are correctly interpreted as milliseconds.
			
			• config.forkTimeoutMillis
			• config.replyTimeoutMillis
			• config.writeTimeoutMillis
			
			The default value for the parameters above is **5000** ms.
			
			(continued on next page)

Description	Component	Summary and Business Impact	Test Scenario
		You can customize three timeout values by using these optional parameters in the ose.xml configuration file. • config.forkTimeoutMillis • config.replyTimeoutMillis • config.writeTimeoutMillis **Business Impact:** The incorrect log message does not impact the functioning of the OnDemand Decision Engine. Refer to the **Test Scenario** column for additional details.	**Important:** If you add the parameters to the ose.xml file before you apply this hot fix, you need to multiply the values by 1000 to maintain the same timeout behavior after you apply the hot fix.
When you select the **!=** operator in the guided rule editor, the web page does not load.	RULES	**Summary:** If you set the operator to **!=** in the **Form** view of the guided rule editor, a busy indicator is displayed, and the page never loads. The steps to reproduce this issue are as follows: 1. Open a rule that was created by using the guided approach. 2. Drag a field onto the grid. 3. Click a field value on the panel. 4. Click the icon to change to **Form** view. 5. Select the != operator from the drop-down list. 6. Click the icon to return to **Grid** view. After you perform these steps, the web page does not load. **Business Impact:** Rule writers cannot use guided rules when certain operators are selected. This impacts their ability to edit rules.	After you apply the hot fix, you can use the **Form** view to set the operator to **!=** and the page loads successfully.

Description	Component	Summary and Business Impact	Test Scenario
When you click the check box to select all rules, the action that you choose is not performed on all the rules.	RULES	**Summary:** On the **Rules** tab in the coding, testing, and production folders, the action that you select is applied only to the selected rules that are visible on the screen. All actions that support multiple rules selections are impacted. For example, in the coding folder, these actions are impacted. • **Promote to Testing** • **Delete** • **Export** • **Print** **Business Impact:** Rules writers might expect more rules to be acted upon than actually are. The users might have to process the rules in smaller groups to complete the intended actions. This impacts their workflow and their efficiency.	After you apply the hot fix, actions are applied to all selected rules.