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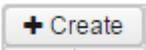
Rule

A "Rules Engine" allows various types of business rules to be written in a text format and easily applied to the system "on the fly" – without even logging out or shutting it down. USAS-R comes with its own set of required business rules, as well as a number of optional business rules that the district may enable or disable as they desire. Customized rules can also be written for each district, either by district personnel with the appropriate access to do so, or with help from their ITC or the SSDT. A few examples of using customized business rules are custom validations, sending email or Twitter notifications, or even updating fields based on certain criteria. These can also be used in conjunction with Custom Fields

Bundled means it comes with the USAS-R software; **Mandatory** means the rule can not be disabled.

Create

1. From the System menu select 'Rules'

2. Click on 
3. Enter in required rule information

Check the **enabled** box if the user wants it to be in affect the next time the rulesets are activated

4. Click on  to ensure rule is correct
5. Click on  to create the rule, click on  to not create the rule.

Activate

Rules do not take affect as soon as they are saved. In order to make a new or changed rule take affect, the user would click on . This will reload all of the enabled rulesets and they will become effective immediately.

Search

The Rules grid allows the user to search for existing Rules on the system by clicking in the filter row in the **grid** columns and entering in the desired

information. Click on any row of the search results to see a summary view of the record. The **Advanced Search** can be utilized by clicking on the  in the upper right side of the grid.

Rules

		Name	Description	Bundled	Mandatory	Enabled
		org.ssd_t_ohio.usas.rules.opu.Opu	Error: OPU code and/or IRN are invalid	true	true	true
		org.ssd_t_ohio.usas.module.usascodes.validation.AccountValidation	Account code validation	true	true	true
		org.ssd_t_ohio.usas.module.usascodes.AccountDescriptionRule	Account description set when left blank	true	false	true
		org.ssd_t_ohio.usas.module.preencumbrance.RegBalanceCheckWarningExcludePreencumbran...	Warning: Negative unencumbered balance check - requisition	true	false	false
		org.ssd_t_ohio.usas.module.preencumbrance.POBalanceCheckWarningExcludePreencumbran...	Warning: Negative unencumbered balance check - purchase order	true	false	false

Edit

The options listed will depend if the rule is bundled and/or mandatory. If the rule is bundled and mandatory a user will only be able to view it. If the rule is bundled and not mandatory the user will be able to view or disable it. If the rule is not bundled then the user will be able to edit, delete or disable it.

Click on the  in the grid beside the Rule to edit the record.

Disable Rule

A rule may be disabled if it is not mandatory.

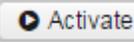
1. From the System menu select 'Rules'
2. Search for desired Rule

3. Click on 

Status

4. Uncheck the Enabled

5. Click on  and close the pop up window

6. Click on  in order for the change to go into affect

Enable Rule

A disabled rule may be enabled at any time.

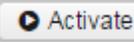
1. From the System menu select 'Rules'
2. Search for desired Rule

3. Click on 

Status

4. Check the Enabled

5. Click on  and close the pop up window

6. Click on  in order for the change to go into affect

Delete

Click on the  in the grid beside the desired rule. A confirmation box will appear and you will be asked to confirm that you really do want to delete this rule. A rule may be deleted if it is not bundled.

Mandatory Rules

The following rules come with the software (bundled) and are mandatory in order to use the software. They will be enabled automatically when the data is imported. Mandatory rules cannot be disabled.

Rule	Description
org.ssd Ohio.modules. customfield .CustomFields	Custom Fields are enabled so that user (with the correct permissions) can create them
org.ssd Ohio.modules. rules .startup-events	Starts up the Rules Engine.
org.ssd Ohio.modules. rules .stream.startup-stream	Rules engine stream startup
org.ssd Ohio.usas.model. account .CashAccountRules	'Include as General' flag is automatically set for funds included as part of the Five Year Forecast.

org.ssdtd_ohio.usas.model. accountChange .AccountChangeAppropriationRule	Warns the user if crossing appropriation boundaries in an account change request
org.ssdtd_ohio.usas.model. accountChange .AccountChangeRequestRules	Generate an Error if the user is trying to cross funds in an Account Change Request
org.ssdtd_ohio.usas.model. accountChange .AccountTransitionFiscalYear	The prior fiscal year must be closed in order to process requests for current fiscal year.
org.ssdtd_ohio.usas.model. account .ExpenditureAccountRules	Warning: Expenditure And Budget Codes don't match
org.ssdtd_ohio.usas.model. budget .BudgetExpenditureOneToOneRule	Error: Budget Expenditure relationship is 1 to 1
org.ssdtd_ohio.usas.model. cashrec .CashReconciliationRules	Warning if the fund total and item total for the Cash Reconciliation being saved do not balance
org.ssdtd_ohio.usas.model. disbursement .DisbursementReconciledDate	Error if the Reconciled Date is not after the Disbursement date
org.ssdtd_ohio.usas.model. disbursement .DisbursementRules	Error if user is generating a Disbursement with a negative amount
org.ssdtd_ohio.usas.model. disbursement .VoidDisbursementRules	Error is generated if voiding a disbursement that is reconciled and/or in a previous FY and /or in a closed posting period and/or with a date prior to transaction date
org.ssdtd_ohio.usas.model. distribution .DistributionRules	Error is generated if Distribution amounts do not equal zero and/or accounts are not the same type (expenditure or revenue)
org.ssdtd_ohio.usas.model. interfundcash .InterFundCashTransaction	Error is generated if trying to edit an advance that has already been paid.
org.ssdtd_ohio.usas.model. invoice .InvoiceItemCancelFullRules	Only one full invoice item per PO item
org.ssdtd_ohio.usas.model. invoice .InvoiceItemsRules	Requires full invoice items to come after partial invoices for a po charge
org.ssdtd_ohio.usas.model. modelTransaction .ModelTransaction	Prevents requisition, purchase order or disbursement transaction from being posted when the date provided is in a closed posting period.
org.ssdtd_ohio.usas.model. po .AmendedPOItemsNotChanged	Prevents an item from being changed on an amended PO
org.ssdtd_ohio.usas.model. po .AmendedPOPreventModificationIfInvoiced	Prevents the purchase order's vendor from being updated if the PO has been invoiced.
org.ssdtd_ohio.usas.model. po .AmendedPOPreventUpdate	Prevents a PO from being updated if the PO is not Modifiable or Amendable
org.ssdtd_ohio.usas.model. po .POConversionRequireAccounts	Purchase Order charges must have a valid account
org.ssdtd_ohio.usas.model. po .POIssuedCancelledDateRules	Unable to modify a PO due to the PO date or item's issued or charged dates are in a closed period
org.ssdtd_ohio.usas.model. po .POItemChargeAmountValidation	Error: Purchase order item and charge amounts are not equal
org.ssdtd_ohio.usas.model. po .POItemChargeDates	Error: Issued and cancelled dates on PO items and charges cannot be prior to PO date
org.ssdtd_ohio.usas.model. po .POMultivendorValidation	Vendor may not be null if purchase order is not a multivendor PO
org.ssdtd_ohio.usas.model. po .POUpdateValidation	Cannot update purchase order if model indicates it is not modifiable.
org.ssdtd_ohio.usas.model. postingPeriod .PostingPeriod	Posting period may not be re-opened because it is more than one year prior to the current period
org.ssdtd_ohio.usas.model. postingPeriod .PostingPeriodClose	All other posting periods in this fiscal year must be closed prior to closing the current period
org.ssdtd_ohio.usas.model. refund .RefundCheckAmount	Error: Check Amount must not be zero
org.ssdtd_ohio.usas.model. requisition .ReqRestrictNumber	Error: User entered an invalid req number
org.ssdtd_ohio.usas.model. requisition .RequisitionItemQuantity	Error: Item quantity must match sum of charge quantities
org.ssdtd_ohio.usas.model. user .RoleChangeRules	User Can Not Change, Create or Delete A Role With An Underscore (SSDT created Roles)

org.ssdt_ohio.usas.model. user .UserDeleteRule	A username cannot be deleted in SYSTEM/User
org.ssdt_ohio.usas.model. vendor .Vendor	Update Vendor last activity date when posting requisition, purchase order, invoice and disbursement
org.ssdt_ohio.usas.model. vendor .VendorDefaultAddressCheck	Vendor must have a default PO address defined
org.ssdt_ohio.usas.model. vendor .VendorDefaultAddresses	Error: Vendor has multiple default PO/check/1099 address defined
org.ssdt_ohio.usas.module. usascodes .CodeStopDateError	Error: Account with stop date prior to current posting period
org.ssdt_ohio.usas.module. usascodes .CodeStopDateWarning	Warning: Account with defined stop date produces a warning
org.ssdt_ohio.usas.module. usascodes .validation.AccountValidation	Account code validation (must be a valid account)
org.ssdt_ohio.usas.module. userbasedbalancechecking .rules.UserBasedBalanceCheckingBootstrap	Bootstrap rules for user-based balance checking
org.ssdt_ohio.usas.rules. opu .Opu	Error: OPU code and/or IRN are invalid

Bundled Rules that are not Mandatory

The following rules come with the software but are not mandatory in order to use the software.

Rule	Description
org.ssdt_ohio.authnz. authnz -default-password	Must meet the required default password rules
org.ssdt_ohio.authnz. authnz -stream-rules	Authentication: Default Breaking Detection and Evasion
org.ssdt_ohio.usas.model. account .AppropriationCreationRulesError	Warning issued stating Appropriation account already exists
org.ssdt_ohio.usas.model. account .AppropriationCreationRulesWarning	Warning issued stating Appropriation did not previously exists so appropriation account automatically created
org.ssdt_ohio.usas.model. account .CashAccountCreationRulesError	Cash Account - Prevent Automatic Creation
org.ssdt_ohio.usas.model. account .CashAccountCreationRulesWarning	Warning issued stating cash account did not previously exists so it will be created
org.ssdt_ohio.usas.model. accountChange .AccountChangeRequestFiscalYear	Prior fiscal year must be closed to process an account change request in current fiscal year
org.ssdt_ohio.usas.model. budget .AppropMappingSample	Budget to appropriation mapping sample
org.ssdt_ohio.usas.model. disbursement .DisbursementNegativeCashBalanceError	Error generated if Disbursement cash account contains a negative balance
org.ssdt_ohio.usas.model. disbursement .DisbursementNegativeCashBalanceWarning	Warning is generated if Disbursement cash account contains a negative balance
org.ssdt_ohio.usas.model. distribution .DistributionNegativeCashBalanceError	Error generated if Distribution cash account contains a negative balance
org.ssdt_ohio.usas.model. distribution .DistributionNegativeCashBalanceWarning	Warning generated if Distribution cash account contains a negative balance
org.ssdt_ohio.usas.model. interfundcash .InterFundNegativeCashBalanceError	Error generated if fund-to-fund transfer or advance cash account contains a negative balance
org.ssdt_ohio.usas.model. interfundcash .InterFundNegativeCashBalanceWarning	Warning genearted if fund-to-fund transfer or advance cash account contains a negative balance
org.ssdt_ohio.usas.model. invoice .InvoiceDatePriorToPODateWarning	Warning: Invoice Date is prior to Purchase Order Date
org.ssdt_ohio.usas.model. invoice .InvoiceItemAmountExceedsEncumbranceRule	Warning: Invoice amount exceeds remaining encumbrance
org.ssdt_ohio.usas.model. invoice .InvoiceVendorActive	Error generated if the invoice's vendor in Inactive

org.ssdt_ohio.usas.model. invoice .InvoiceVendorDefaultCheckAddress	Warning: Vendor does not have a default Check address defined - invoice
org.ssdt_ohio.usas.model. invoice .InvoiceItemAmountExceedsEncumbranceRule	Warning: Invoice amount exceeds remaining encumbrance
org.ssdt_ohio.usas.model. po .POPPreventDelete	Error: Purchase orders cannot be deleted
org.ssdt_ohio.usas.model. po .PORRequireActiveAccounts	Requires active accounts on purchase orders
org.ssdt_ohio.usas.model. po .PORRestrictedFunctionCodes	Prevents Posting purchase order expenditures with function codes 7100-7499
org.ssdt_ohio.usas.model. po .POVendorActive	Requires active vendors on purchase orders
org.ssdt_ohio.usas.model. po .PoVendorDefaultPOAddress	Warning: Vendor does not have a default PO address defined on the purchase order
org.ssdt_ohio.usas.model. postingPeriod .PostingPeriodReOpen	Error: Prevent opening a previously closed posting period
org.ssdt_ohio.usas.model. receipt .ReceiptAccountRules	Requires active accounts on receipts
org.ssdt_ohio.usas.model. receipt .ReceiptNegativeCashBalanceError	Prevents posting Receipt to a cash account with negative balance
org.ssdt_ohio.usas.model. receipt .ReceiptNegativeCashBalanceWarning	Warning when posting a Receipt to a cash account with negative balance
org.ssdt_ohio.usas.model. receipt .ReceiptNumberChanged	Prevent the Receipt number from being modified
org.ssdt_ohio.usas.model. receipt .ReceiptRestrictedCodes	Prevent an invalid revenue account from being posted to a receipt item
org.ssdt_ohio.usas.model. refund .RefundAccountRules	Prevent an Inactive account from being posted to a refund
org.ssdt_ohio.usas.model. refund .RefundNegativeCashBalanceError	Prevent a Refund from being posted to a negative cash account balance
org.ssdt_ohio.usas.model. refund .RefundNegativeCashBalanceWarning	Warning will be issued is the refund posts to a negative cash balance
org.ssdt_ohio.usas.model. refund .RefundVendorActive	Prevent inactive vendors from being posted to a refund
org.ssdt_ohio.usas.model. requisition .ReqRequireActiveAccounts	Prevent an inactive account to be posted to a requisition
org.ssdt_ohio.usas.model. requisition .ReqRestrictedFunctionCodes	Prevent posting requisitions with expenditure account containing function codes 7100-7499
org.ssdt_ohio.usas.model. requisition .RequisitionVendorActive	Prevent an inactive vendor from being posted to a requisition
org.ssdt_ohio.usas.model. requisition .ReqVendorDefaultPOAddress	Warning will be issued if a vendor does not have a default PO address defined when posting a requisition
org.ssdt_ohio.usas.model. vendor .VendorNumberChanged	Prevent a Vendor number from being modified
org.ssdt_ohio.usas.model. vendor .VendorTaxIdRules	Enforces that the tax Id Type must be set if the Id # and Type 1099 are set.
org.ssdt_ohio.usas.module. usascodes .AccountDescriptionRule	Set the account description to the default account descriptions when left blank
org.ssdt_ohio.usas.module. userbasedbalancechecking .rules.DistributionAppropriationBalanceCheckWarning	Warning will be issued if Appropriation account balance is negative when posting a distribution
org.ssdt_ohio.usas.module. userbasedbalancechecking .rules.DistributionBudgetBalanceCheckWarning	Warning will be issued if Budget account balance is negative when posting a distribution
org.ssdt_ohio.usas.module. userbasedbalancechecking .rules.PendingTransactionAppropriationBalanceCheck	Warning will be issued if Appropriation account balance is negative when posting a pending transaction
org.ssdt_ohio.usas.module. userbasedbalancechecking .rules.PendingTransactionBudgetBalanceCheck	Warning will be issued if Budget account balance is negative when posting a pending transaction
org.ssdt_ohio.usas.module. userbasedbalancechecking .rules.POAppropriationBalanceCheckWarningExcludePreEncumbrance	Warning will be issued if appropriation account unencumbered balance is negative when posting a purchase order
org.ssdt_ohio.usas.module. userbasedbalancechecking .rules.POBudgetBalanceCheckWarningExcludePreEncumbrance	Warning/Error: Negative budget unencumbered balance check - purchase order
org.ssdt_ohio.usas.module. userbasedbalancechecking .rules.PurchaseOrderAppropriationBalanceCheckWarning	Warning will be issued if Negative appropriation balance when posting a purchase order

org.ssdtd_ohio.usas.module. userbasedbalancechecking .rules.PurchaseOrderBudgetBalanceCheckWarning	Warning will be issued if Negative budget balance when posting a purchase order
org.ssdtd_ohio.usas.module. userbasedbalancechecking .rules.ReqAppropriationBalanceCheckWarningExcludePreEncumbrance	Warning will be issued if Negative appropriation unencumbered balance when posting a requisition
org.ssdtd_ohio.usas.module. userbasedbalancechecking .rules.ReqBudgetBalanceCheckWarningExcludePreEncumbrance	Warning will be issued if Negative budget unencumbered balance when posting a requisition
org.ssdtd_ohio.usas.module. userbasedbalancechecking .rules.RequisitionAppropriationBalanceCheckWarning	Warning will be issued if Negative appropriation balance when posting a requisition
org.ssdtd_ohio.usas.module. userbasedbalancechecking .rules.RequisitionBudgetBalanceCheckWarning	Warning will be issued if Negative budget balance when posting a requisition

Custom Rules

Customized rules can also be written for each district, either by district personnel with the appropriate access to do so, or with help from their ITC or the SSDT. A few examples of using customized business rules are custom validations, sending email or Twitter notifications, or even updating fields based on certain criteria. These can also be used in conjunction with Custom Fields.

A few things worth mentioning with regards to rules.

- You need to make sure the name of the rule is unique.
- You'll also want to validate the rule to make sure there are no errors.
- Finally, once you've successfully saved your rule, you need to make sure to click the Activate button from the rule grid for the rule to take effect.

The following are custom rules that can be created:

Require a deliver to address when creating a requisition

Name: org.districtname.RequisitionDeliveryAddressRequired

Description: Prevent posting Requisition without a Delivery Address

```

package org.districtName.Requisition.DeliveryAddressRequired;
dialect "mvel"

import function org.ssdtd_ohio.modules.rules.RulesHelper.*
import org.ssdtd_ohio.model.ModelInformation;
import org.ssdtd_ohio.model.ModelState;
import org.ssdtd_ohio.model.events.*;
import org.ssdtd_ohio.usas.model.requisition.Requisition;
import org.ssdtd_ohio.usas.model.vendor.Vendor;

rule "requisition delivery address is required"

    when
        CreateObjectEvent() or UpdateObjectEvent()
        ModelInformation(state != ModelState.IMPORTING, primary)
        $requisition : Requisition(deliveryAddress.isEmpty())

    then
        error(kcontext, "Requisition cannot be saved without a delivery address")

end

```

Require a vendor when creating a requisition

Name: org.districtname.RequisitionVendorRequired

Description: Prevent posting Requisition without a Vendor

```

package org.districtName.Requisition.VendorRequired;
dialect "mvel"

import function org.ssd Ohio.modules.rules.RulesHelper.*
import org.ssd Ohio.model.ModelInformation;
import org.ssd Ohio.model.ModelState;
import org.ssd Ohio.model.events.*;
import org.ssd Ohio.usas.model.requisition.Requisition;
import org.ssd Ohio.usas.model.vendor.Vendor;

rule "requisition vendor is required"

    when
        CreateObjectEvent() or UpdateObjectEvent()
        ModelInformation(state != ModelState.IMPORTING, primary)
        $requisition : Requisition(getVendor() == null)

    then
        error(kcontext, "Requisition cannot be saved without a vendor")

end

```

Require that an account code be entered for each requisition line item when creating requisition

Name: org.districtname.RequisitionWithoutAccount

Description: Prevent requisition from being created without account code

```

package org.ssd Ohio.usas.model.requisition;
dialect "mvel"

import function org.ssd Ohio.modules.rules.RulesHelper.*
import org.ssd Ohio.model.events.*
import org.ssd Ohio.model.ModelInformation
import org.ssd Ohio.model.ModelState
import org.ssd Ohio.usas.model.requisition.*
import org.ssd Ohio.usas.model.accountChange.AccountChangeUpdateRules

rule "require accounts on requisitions"

    when
        CreateObjectEvent() or UpdateObjectEvent()
        ModelInformation(state != ModelState.IMPORTING, primary)
        not AccountChangeUpdateRules()
        $req : Requisition()
        RequisitionItem(charges.size() == 0) from $req.items

    then
        error(kcontext, "Expenditure Account is required")

end

```

Prevent Requisition from being created when the attention to field is blank

Name: org.districtname.RequisitionWithoutAttentionTo

Description: Prevent requisition from being created when attention to is blank

```

package org.districtName.RequisitionAttentionTo;
dialect "mvel"

import function org.ssd Ohio.modules.rules.RulesHelper.*
import org.ssd Ohio.model.ModelInformation;
import org.ssd Ohio.model.ModelState;
import org.ssd Ohio.model.events.*;
import org.ssd Ohio.usas.model.requisition.Requisition;
import org.ssd Ohio.usas.model.vendor.Vendor;

rule "requisition vendor is required"

    when
        CreateObjectEvent() or UpdateObjectEvent()
        ModelInformation(state != ModelState.IMPORTING, primary)
            $requisition : Requisition(attention == null)

    then
        error(kcontext, "Requisition must have valid attention field")

end

```

Prevent Requisition from being saved or updated when any of the item descriptions are null or are an empty string

Name: org.districtname.RequisitionItemsWithNoDescription

Description: Prevent requisition from being saved or updated when any of the item descriptions are null or are an empty string

```

package org.districtName.Requisition
dialect "mvel"

import function org.ssd Ohio.modules.rules.RulesHelper.*
import org.ssd Ohio.model.events.*
import org.ssd Ohio.model.ModelInformation
import org.ssd Ohio.model.ModelState
import org.ssd Ohio.usas.model.requisition.*

rule "Requisition Items Must Have A Description"

    when
        $event : RepositoryModificationEvent(isCreate() || isUpdate())
        ModelInformation(state != ModelState.IMPORTING, primary)
        $requisition : Requisition() from $event.target
        $item : RequisitionItem(description == null || description.trim().length() == 0) from
        $requisition.getItems()

    then
        error(kcontext, "Requitistion item number: " + $item.lineNumber + ", units: " + $item.units +
            ", quantity: " + $item.quantity + ", unit price: " + $item.unitPrice +
            " has no description from requisition: " + $requisition.description)

end

```

Require an amount on a Receipt item

Name: org.districtname.ReceiptItemsWithoutAmount

Description: Prevent receipt from being saved or updated when a receipt item amount is empty

```
package org.ssd Ohio.usas.model.receipt;
dialect "mvel"
//ssdt: mandatory=false, enabled=true, description=Error: receipt item amount must be specified

import function org.ssd Ohio.modules.rules.RulesHelper.*
import org.ssd Ohio.model.ModelInformation
import org.ssd Ohio.model.ModelState
import org.ssd Ohio.model.events.*
import org.ssd Ohio.usas.model.account.RevenueAccount
import org.ssd Ohio.usas.model.account.RevenueCode

rule "ReceiptItemAmounts"
  when
    ModelInformation(state != ModelState.IMPORTING, primary)
    CreateObjectEvent() or UpdateObjectEvent()
    $receipt : Receipt()
    $item : ReceiptItem(amount == null || amount == 0) from $receipt.items

  then
    error(kcontext, "Item amount required for item: " + $item.lineNumber)
end
```

More Information