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/* Freek Keijzer, myBrand, 21.09.2020
Based on standard SAP view I_MaterialDocumentRecord.
Enhancements:
- Field StockChangeCategory is needed earlier to be used for time series
- Generic counter for Material Document Items

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Change-log:
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@EndUserText.label: 'MM: I_MaterialDocumentRecord (enh.)'
@AbapCatalog.sqlViewName: 'ZIMATDOCREC'

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@AbapCatalog.compiler.compareFilter: true
@AbapCatalog.preserveKey: true
@AccessControl.authorizationCheck: #CHECK

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define view ZB_I_MaterialDocumentRecord
as select from matdoc

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    association [0..1] to I_Material as _Material on $projection.Material = _Material.Material
    association [0..1] to I_Material as _StockIdentifyingMaterial on $projection.StockIdentifyingMaterial =
    _StockIdentifyingMaterial.Material
    association [0..1] to I_Material as _IssgOrRcvgMaterial on $projection.IssgOrRcvgMaterial =
    _IssgOrRcvgMaterial.Material

    association [0..1] to I_Plant as _Plant on $projection.Plant = _Plant.Plant
    association [0..1] to I_Plant as _IssuingOrReceivingPlant on $projection.IssuingOrReceivingPlant =
    _IssuingOrReceivingPlant.Plant
    association [0..1] to I_StorageLocation as _StorageLocation on $projection.StorageLocation =
    _StorageLocation.StorageLocation
    association [0..1] to I_StorageLocation as _IssuingOrReceivingStorageLoc and $projection.Plant = _StorageLocation.Plant
    _IssuingOrReceivingStorageLoc.StorageLocation on $projection.IssuingOrReceivingStorageLoc =
    _IssuingOrReceivingStorageLoc.Plant
    association [0..1] to I_StorageLocation as _StockIdfgStorageLocation on $projection.StockIdfgStorageLocation =
    _StockIdfgStorageLocation.StorageLocation
    association [0..1] to I_StorageLocation as _StockIdfgStorageLocation on $projection.StockIdfgStorageLocation =
    _StockIdfgStorageLocation.Plant

    association [0..1] to I_Supplier as _Supplier on $projection.Supplier = _Supplier.Supplier
    association [0..1] to I_Supplier as _SpecialStockIdfgSupplier on $projection.SpecialStockIdfgSupplier =
    _SpecialStockIdfgSupplier.Supplier

    association [0..1] to I_Customer as _Customer on $projection.Customer = _Customer.Customer
    association [0..1] to I_Customer as _SpecialStockIdfgCustomer on $projection.SpecialStockIdfgCustomer =
    _SpecialStockIdfgCustomer.Customer

    association [0..1] to I_SupplierCompanyByPlant as _SupplierCompanyByPlant on $projection.Supplier = _SupplierCompanyByPlant.Supplier
    association [0..1] to I_SupplierCompanyByPlant as _SupplierCompanyByPlant and $projection.Plant = _SupplierCompanyByPlant.Plant
    association [0..1] to I_CustomerCompanyByPlant as _CustomerCompanyByPlant on $projection.Customer = _CustomerCompanyByPlant.Customer
    association [0..1] to I_CustomerCompanyByPlant as _CustomerCompanyByPlant and $projection.Plant = _CustomerCompanyByPlant.Plant

    association [0..1] to I_Supplier as _BPStockOwner on $projection.StockOwner = _BPStockOwner.Supplier
    association [0..1] to I_Supplier as _SpecialStockIdfgStockOwner on $projection.SpecialStockIdfgStockOwner =
    _SpecialStockIdfgStockOwner.Supplier

    association [0..1] to I_InventorySpecialStockType as _InventorySpecialStockType on $projection.InventorySpecialStockType =
    _InventorySpecialStockType.InventorySpecialStockType

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    association [0..1] to I_InventorySpecialStockType as _IssgOrRcvgSpclStockInd
    _IssgOrRcvgSpclStockInd.InventorySpecialStockType
    association [0..1] to I_InventoryStockType as _InventoryStockType
    _InventoryStockType.InventoryStockType
    association [0..1] to I_InventoryStockType as _IssuingOrReceivingStockType
    _IssuingOrReceivingStockType.InventoryStockType
    association [0..1] to I_InventoryValuationType as _InventoryValuationType
    _InventoryValuationType.InventoryValuationType

    association [0..1] to I_GoodsMovementType as _GoodsMovementType
    _GoodsMovementType.GoodsMovementType
    association [0..1] to I_PhysInvtryReasonCode as _GoodsMovementReasonCode
    _GoodsMovementReasonCode.GoodsMovementType
    _GoodsMovementReasonCode.ReasonForPhysInvtryDifference

    association [0..1] to I_DebitCreditCode as _DebitCreditCode
    _DebitCreditCode.DebitCreditCode
    association [0..1] to I_StockType as _StockType

    association [0..1] to I_UnitOfMeasure as _MaterialBaseUnit
    _MaterialBaseUnit.UnitOfMeasure
    association [0..1] to I_UnitOfMeasure as _EntryUnit

    association [0..1] to I_GLAccount as _GLAccount

    association [0..*] to I_CostCenter as _CostCenter

    --valid date range not included, multiple entries can be returned
    association [0..*] to I_ProfitCenter as _ProfitCenter

    _ProfitCenter.ValidityStartDate

    association [0..1] to I_BusinessPartner as _BusinessPartner
    _BusinessPartner.BusinessPartner
    association [0..1] to I_Employment as _Employment
    _Employment.EmploymentInternalID
    association [0..1] to I_AccountAssignmentCategory as _AccountAssignmentCategory
    _AccountAssignmentCategory.AccountAssignmentCategory
    association [0..1] to I_WorkItem as _WorkItem

    association [0..1] to I_MasterFixedAsset as _MasterFixedAsset
    _MasterFixedAsset.CompanyCode
    _MasterFixedAsset.MasterFixedAsset
    association [0..1] to I_FixedAsset as _FixedAsset

    association [0..1] to I_CompanyCode as _CompanyCode
    association [0..1] to I_BusinessArea as _BusinessArea
    association [0..1] to I_ControllingArea as _ControllingArea
    _ControllingArea.ControllingArea

    on $projection.IssgOrRcvgSpclStockInd =
    on $projection.InventoryStockType =
    on $projection.IssuingOrReceivingStockType =
    on $projection.InventoryValuationType =

    on $projection.GoodsMovementType =
    on $projection.GoodsMovementType =
    and $projection.GoodsMovementReasonCode =

    on $projection.DebitCreditCode =
    on $projection.InventoryUsabilityCode = _StockType.StockType
    on $projection.MaterialBaseUnit =
    on $projection.EntryUnit = _EntryUnit.UnitOfMeasure
    on $projection.GLAccount = _GLAccount.GLAccount
    and $projection.CompanyCode = _GLAccount.CompanyCode

    on $projection.CostCenter = _CostCenter.CostCenter
    and $projection.ControllingArea = _CostCenter.ControllingArea
    and $projection.PostingDate <= _CostCenter.ValidityEndDate
    and $projection.PostingDate >= _CostCenter.ValidityStartDate

    on $projection.ControllingArea = _ProfitCenter.ControllingArea
    and $projection.ProfitCenter = _ProfitCenter.ProfitCenter
    and $projection.PostingDate <= _ProfitCenter.ValidityEndDate
    and $projection.PostingDate >=

    on $projection.ServicePerformer =
    on $projection.EmploymentInternalID =
    on $projection.AccountAssignmentCategory =
    on $projection.WorkItem = _WorkItem.WorkItem

    on $projection.CompanyCode =
    and $projection.MasterFixedAsset =

    on $projection.CompanyCode = _FixedAsset.CompanyCode
    and $projection.MasterFixedAsset = _FixedAsset.MasterFixedAsset
    and $projection.FixedAsset = _FixedAsset.FixedAsset

    on $projection.CompanyCode = _CompanyCode.CompanyCode
    on $projection.BusinessArea = _BusinessArea.BusinessArea
    on $projection.ControllingArea =

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    association [0..1] to I_FunctionalArea      as _FunctionalArea      on $projection.FunctionalArea = _FunctionalArea.FunctionalArea

    association [0..1] to I_SalesOrder          as _SalesOrder          on $projection.SalesOrder = _SalesOrder.SalesOrder
    association [0..1] to I_SalesOrder          as _SpecialStockIdfgSalesOrder on $projection.SpecialStockIdfgSalesOrder =
_SpecialStockIdfgSalesOrder.SalesOrder

    association [0..1] to I_SalesOrderItem      as _SalesOrderItem      on $projection.SalesOrder      = _SalesOrderItem.SalesOrder
    association [0..1] to I_SalesOrderItem      as _SpecialStockIdfgSalesOrderItm on $projection.SpecialStockIdfgSalesOrder      =
_SpecialStockIdfgSalesOrderItm.SalesOrder
    association [0..1] to I_SalesOrderItem      as _SpecialStockIdfgSalesOrderItm on $projection.SpecialStockIdfgSalesOrderItem =
_SpecialStockIdfgSalesOrderItm.SalesOrderItem
    association [0..1] to I_SalesOrderScheduleLine as _SalesOrderScheduleLine on $projection.SalesOrder      =
_SalesOrderScheduleLine.SalesOrder
    association [0..1] to I_SalesOrderScheduleLine as _SalesOrderScheduleLine on $projection.SalesOrderItem =
_SalesOrderScheduleLine.ScheduleLine

    association [0..1] to I_WBSElementByInternalKey as _SpecialStockIdfgWBSElement on $projection.SpecialStockIdfgWBSElement =
_SpecialStockIdfgWBSElement.WBSElementInternalID
    association [0..1] to I_WBSElementByInternalKey as _WBSElement on $projection.WBSElementInternalID =
_WBSElement.WBSElementInternalID

    association [0..1] to I_PurchaseOrder        as _PurchaseOrder        on $projection.PurchaseOrder = _PurchaseOrder.PurchaseOrder
    association [0..1] to I_PurchaseOrderItem    as _PurchaseOrderItem    on $projection.PurchaseOrder =
_PurchaseOrderItem.PurchaseOrder
    association [0..1] to I_PurchaseOrderItem    as _PurchaseOrderItem    on $projection.PurchaseOrderItem =
_PurchaseOrderItem.PurchaseOrderItem
    association [0..1] to I_ProjectNetwork      as _ProjectNetwork      on $projection.ProjectNetwork = _ProjectNetwork.ProjectNetwork
    association [0..1] to I_MfgOrder            as _MfgOrder            on $projection.ManufacturingOrder =
_MfgOrder.ManufacturingOrder
    association [0..1] to I_MfgOrderItem        as _MfgOrderItem        on $projection.ManufacturingOrder =
_MfgOrderItem.ManufacturingOrder
    association [0..1] to I_MfgOrderItem        as _MfgOrderItem        on $projection.ManufacturingOrderItem =
_MfgOrderItem.ManufacturingOrderItem
    association [0..1] to I_LogisticsOrder      as _LogisticsOrder      on $projection.OrderID = _LogisticsOrder.OrderID
// The field AUFPS is not assigned to the field POSNR of table AFPO, AUFPS is only filled in case of a goods receipt to a Production Order
// association [0..1] to I_OrderItem            as _OrderItem            on $projection.OrderID = _OrderItem.OrderID
//                                     and $projection.OrderItem = _OrderItem.OrderItem
    association [0..1] to I_DeliveryDocument    as _DeliveryDocument    on $projection.DeliveryDocument =
_DeliveryDocument.DeliveryDocument
    association [0..1] to I_DeliveryDocumentItem as _DeliveryDocumentItem    on $projection.DeliveryDocument =
_DeliveryDocumentItem.DeliveryDocument
    association [0..1] to I_DeliveryDocumentItem as _DeliveryDocumentItem    on $projection.DeliveryDocumentItem =
_DeliveryDocumentItem.DeliveryDocumentItem
    association [0..1] to I_DeliveryDocument    as _DeliveryInMatlDocumentHeader on $projection.DeliveryInMatlDocumentHeader =
_DeliveryInMatlDocumentHeader.DeliveryDocument

    association [0..1] to I_User                as _User                on $projection.CreatedByUser = _User.UserID
    association [0..1] to I_AccountingDocumentType as _AccountingDocumentType on $projection.AccountingDocumentType =
_AccountingDocumentType.AccountingDocumentType
    association [0..1] to I_InventoryTransactionType as _InventoryTransactionType on $projection.InventoryTransactionType =
_InventoryTransactionType.InventoryTransactionType
    association [0..1] to I_Currency            as _Currency            on $projection.InventoryTransactionType.IsMaterialDocumentRelevant = 'X'
    association [0..1] to I_Currency            as _Currency            on $projection.CompanyCodeCurrency = _Currency.Currency
{
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//-----Start of custom enhancement, part 1/1
//-----
//----Field StockChangeCategory is needed earlier to be used for time series
    cast(case when stock_qty > 0 and reversal_movement = '' or
        stock_qty < 0 and reversal_movement = 'X'
    then 'GR'
    else case
        when stock_qty < 0 and reversal_movement = '' or
            stock_qty > 0 and reversal_movement = 'X'
        then 'GI'
        else '' end
    end as nsdm_stock_change_category preserving type) as StockChangeCategory,

//----Generic counter for Material Document Items
    1 as CountMatDocPos,
//-----
//-----End of custom enhancement, part 1/1
//-----

cast(mjahr as nsdm_mjahr preserving type) as MaterialDocumentYear,
mblnr      as MaterialDocument,
cast(zeile as nsdm_mblpo preserving type) as MaterialDocumentItem,

matbf      as StockIdentifyingMaterial,
werks      as Plant,
lgort_sid  as StockIdfgStorageLocation,
charg_sid  as StockIdentifyingBatch,
lifnr_sid  as SpecialStockIdfgSupplier,
mat_kdauf  as SpecialStockIdfgSalesOrder,
mat_kdpos  as SpecialStockIdfgSalesOrderItem,
mat_pspnr  as SpecialStockIdfgWBSElement,
kunnr_sid  as SpecialStockIdfgCustomer,
cast(sobkz as nsdm_spcl_stock_type preserving type) as InventorySpecialStockType,
lbbsa_sid  as InventoryStockType,
cast(disub_owner_sid as nsdm_add_spcl_stock_supplier preserving type) as SpecialStockIdfgStockOwner,

-- with records of type MDOC_CP, AG_MDOC_CF etc there is no unique key except the technical GUID key, so we don't use any key fields at all

matnr      as Material,
lgort      as StorageLocation,
charg      as Batch,
lifnr      as Supplier,
kdauf      as SalesOrder,
cast(kdpos as nsdm_sales_order_item preserving type) as SalesOrderItem,
cast(kdein as nsdm_kdein preserving type) as SalesOrderScheduleLine,
kunnr      as Customer,
cast(disub_owner as nsdm_add_spcl_stock_supplier preserving type) as StockOwner,
ps_psp_pnr as WBSElementInternalID,

cast(ummat as nsdm_umat preserving type) as IssgOrRcvgMaterial,
umwrk      as IssuingOrReceivingPlant,
umlgo      as IssuingOrReceivingStorageLoc,
cast(umcha as nsdm_umcha preserving type) as IssgOrRcvgBatch,
umsok      as IssgOrRcvgSpclStockInd,
umbar      as IssuingOrReceivingValType,
lbbsa_cid  as IssuingOrReceivingStockType,

cast(kzbew as nsdm_kzbew preserving type) as GoodsMovementRefDocType,
kzvbr      as ConsumptionPosting,

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grund          as GoodsMovementReasonCode,
bwart          as GoodsMovementType,
shkzg          as DebitCreditCode,
insmk          as InventoryUsabilityCode,
@Semantics.quantity.unitOfMeasure: 'MaterialBaseUnit'
@DefaultAggregation: #NONE
menge          as QuantityInBaseUnit,
@Semantics.unitOfMeasure: true
meins          as MaterialBaseUnit,

@DefaultAggregation: #NONE
@Semantics.quantity.unitOfMeasure: 'MaterialBaseUnit'
stock_qty      as MatlStkChangeQtyInBaseUnit,

@DefaultAggregation: #NONE
@Semantics.quantity.unitOfMeasure: 'MaterialBaseUnit'
consumption_qty as MatlCnsmprQtyInMatlBaseUnit,

@Semantics.businessDate.at: true
bldat          as DocumentDate,
blart          as AccountingDocumentType,
vgart          as InventoryTransactionType,
cast ( kzbws as nsdm_separate_valn_type preserving type ) as InventorySpecialStockValnType,

cpudt          as CreationDate,
cputm          as CreationTime,
usnam          as CreatedByUser,
bktxt          as MaterialDocumentHeaderText,
sgtxt          as MaterialDocumentItemText,
le_vbeln       as DeliveryInMatlDocumentHeader,
frbnr          as BillOfLading,

vfdat          as ShelfLifeExpirationDate,
hsdat          as ManufactureDate,

@Semantics.quantity.unitOfMeasure: 'EntryUnit'
@DefaultAggregation: #NONE
erfmg          as QuantityInEntryUnit,
@Semantics.unitOfMeasure: true
erfme          as EntryUnit,
bwtar          as InventoryValuationType,

ebeln          as PurchaseOrder,
ebelp          as PurchaseOrderItem,
nplnr          as ProjectNetwork,
aufnr          as ManufacturingOrder,
cast(aufps as nsdm_co_posnr preserving type) as ManufacturingOrderItem,
aufnr          as OrderID,
cast(aufps as nsdm_co_posnr preserving type) as OrderItem,
rnum           as Reservation,
cast(rspos as nsdm_rspos preserving type ) as ReservationItem,
cast(kzear as nsdm_kzear preserving type ) as ReservationIsFinallyIssued,
vbeln_im       as DeliveryDocument,
vbeln_im       as DeliveryDocumentItem,
elkz           as IsCompletelyDelivered,

cast(sjahr as nsdm_sjahr preserving type) as ReversedMaterialDocumentYear,
cast(smbln as nsdm_smbln preserving type) as ReversedMaterialDocument,
cast(smblp as nsdm_smblp preserving type) as ReversedMaterialDocumentItem,

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xwsbr          as RvslOfGoodsReceiptIsAllowed,
cast(reversal_movement as nsdm_xstbw preserving type) as IsReversalMovementType,
cancelled      as GoodsMovementIsCancelled,
cancellation_type as GoodsMovementCancellationType,

wempf          as GoodsRecipientName,
ablad          as UnloadingPointName,
kostl          as CostCenter,
sakto          as GLAccount,
kstrg          as CostObject,
cast(paobjnr as nsdm_rkeobjnr preserving type) as ProfitabilitySegment,
prctr          as ProfitCenter,
kalnr          as CostEstimate,

xblnr          as ReferenceDocument,
serviceperformer as ServicePerformer,
pernr          as EmploymentInternalID,
cast(knttp_gr as nsdm_knttp preserving type) as AccountAssignmentCategory,
work_item_id   as WorkItem,
fbuda          as ServicesRenderedDate,

bukrs          as CompanyCode,
gsber          as BusinessArea,
kokrs          as ControllingArea,
fkber          as FunctionalArea,
urzei          as OriginalMaterialDocumentItem,
maa_urzei      as MultiAcctAssgmtOriglMatlDocItm,
weunb          as GoodsReceiptIsNonValuated,
xmacc          as HasMultipleAccountAssignment,
anln1          as MasterFixedAsset,
anln2          as FixedAsset,
@Semantics.businessDate.at: true
budat          as PostingDate,
@Semantics.fiscal.yearPeriod: true
cast(gjper as nsdm_jahrper preserving type) as FiscalYearPeriod,
@Semantics.fiscal.yearVariant: true
periv          as FiscalYearVariant,

fistl          as FundsCenter,
geber          as Fund,
fipos          as CommitmentItem,
grant_nbr      as GrantID,

yearday_budat  as YearDay,
@Semantics.calendar.yearWeek: true
yearweek_budat as YearWeek,
@Semantics.calendar.yearMonth: true
yearmonth_budat as YearMonth,
@Semantics.calendar.yearQuarter: true
yearquarter_budat as YearQuarter,
@Semantics.calendar.year: true
year_budat     as DocumentYear,
@Semantics.calendar.quarter: true
quarter_budat  as CalendarQuarter,
@Semantics.calendar.month: true
month_budat    as CalendarMonth,
@Semantics.calendar.week: true
week_budat     as CalendarWeek,
@Semantics.calendar.dayOfYear: true

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cast(day_budat as nsdm_day_of_year preserving type) as CalendarDay,
cast(weekday_budat as nsdm_day_of_week preserving type) as WeekDay,
gjahr as FiscalYear,
gjper_curr_per as YearPeriod,

@Semantics.amount.currencyCode: 'CompanyCodeCurrency'
@DefaultAggregation: #NONE
dmbtr as TotalGoodsMvtAmtInCCCrCy,
@Semantics.amount.currencyCode: 'CompanyCodeCurrency'
@DefaultAggregation: #NONE
dmbtr_stock as GoodsMovementStkAmtInCCCrCy,
@Semantics.amount.currencyCode: 'CompanyCodeCurrency'
@DefaultAggregation: #NONE
dmbtr_cons as GoodsMvtCnsmprnAmtInCCCrCy,
@Semantics.currencyCode: true
cast(waers as nsdm_comp_code_currency preserving type) as CompanyCodeCurrency,

@Semantics.amount.currencyCode: 'CompanyCodeCurrency'
@DefaultAggregation: #NONE
exbwr as GdsMvtExtAmtInCoCodeCrCy,
@Semantics.amount.currencyCode: 'CompanyCodeCurrency'
@DefaultAggregation: #NONE
vkwrt as SlsPrcAmtInclVATInCoCodeCrCy,
@Semantics.amount.currencyCode: 'CompanyCodeCurrency'
@DefaultAggregation: #NONE
exvkw as EnteredSlsAmtInCoCodeCrCy,

@Consumption.hidden: true
tcode2 as TransactionCode,

@Consumption.hidden: true
cast(xauto as nsdm_xauto preserving type) as IsAutomaticallyCreated,
@Consumption.hidden: true
cast(line_id as nsdm_mb_line_id preserving type) as MaterialDocumentLine,
@Consumption.hidden: true
parent_id as MaterialDocumentParentLine,
@Consumption.hidden: true
line_depth as HierarchyNodeLevel,

@Consumption.hidden: true
record_type as MaterialDocumentRecordType,
@Consumption.hidden: true
header_counter as IsMaterialDocumentHeader,

_Material,
_StockIdentifyingMaterial,
_IssgOrRcvgMaterial,
_Plant,
_IssuingOrReceivingPlant,
_StorageLocation,
_IssuingOrReceivingStorageLoc,
_StockIdfgStorageLocation,

_Supplier,
_SpecialStockIdfgSupplier,

_Customer,
_SpecialStockIdfgCustomer,

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```
@Consumption.hidden: true
_SupplierCompanyByPlant,
@Consumption.hidden: true
_CustomerCompanyByPlant,

_BPStockOwner,
_SpecialStockIdfgStockOwner,

_InventorySpecialStockType,
_IssgOrRcvgSpclStockInd,
_InventoryStockType,
_IssuingOrReceivingStockType,
_InventoryValuationType,

_GoodsMovementType,
_GoodsMovementReasonCode,
_DebitCreditCode,
_StockType,

_MaterialBaseUnit,
_EntryUnit,

_BusinessPartner,
_Employment,
_AccountAssignmentCategory,
_WorkItem,
_MasterFixedAsset,
_FixedAsset,
_CompanyCode,
_BusinessArea,
_ControllingArea,
_GLAccount,
_CostCenter,
_FunctionalArea,
_ProfitCenter,

_SalesOrder,
_SpecialStockIdfgSalesOrder,

_SalesOrderItem,
_SpecialStockIdfgSalesOrderItm,

_SalesOrderScheduleLine,

_WBSElement,
_SpecialStockIdfgWBSElement,

_PurchaseOrder,
_PurchaseOrderItem,
_ProjectNetwork,
_MfgOrder,
_MfgOrderItem,
_LogisticsOrder,
_DeliveryDocument,
_DeliveryDocumentItem,
_DeliveryInMatlDocumentHeader,

_User,
_AccountingDocumentType,
```



```
    _InventoryTransactionType,  
    _Currency  
}
```