**Offline Testing**

1. Compare the following fields to Legacy for SOD Summary information:
   1. Index Value
   2. Divisor
   3. Market Value
   4. Basket Value
   5. Total Shares
   6. Cash Dividend Market Value
   7. TSO Market Value
   8. Added Market Value
   9. Removed Market Value
   10. Special Dividend Market Value
   11. Split Market Value
   12. Previous Index Value
   13. Previous Divisor
   14. Previous Market Value
2. Compare the following fields to Legacy for SOD Detail information:
   1. Number of shares
   2. T1
   3. Spot Rate
   4. TSO
   5. FFF
   6. Market Value
   7. Previous Close
3. Compare the following fields to Legacy for EOD Summary information:
   1. Index Value
   2. Divisor
   3. Market Value
   4. Basket Value
   5. Total Shares
   6. Cash Dividend Market Value
   7. TSO Market Value
   8. Added Market Value
   9. Removed Market Value
   10. Special Dividend Market Value
   11. Split Market Value
4. Compare the following fields to Legacy for EOD Detail information:
   1. Number of shares
   2. T1
   3. Spot Rate
   4. TSO
   5. FFF
   6. Market Value
   7. Previous Close
5. Verify the following actions are processed correctly:
   1. Corporate Action (details on how to enter through the workstation are below)
      1. CP – Stock Dividend Payable in another company
      2. CS – Cash and Stock Dividend or Split
      3. RS – Reverse Split
      4. SO – Spin Off
      5. XC – Cash Dividend
      6. XR – Ex-Rights
      7. XS – Stock Dividend or Split
      8. XW – Ex-Warrants
      9. XX – Any Other Type
   2. IM Maintenance Action
      1. Basket Add Constituent
      2. Basket Delete Constituent
      3. Basket Recalculate Constituent
      4. Basket Remove/Replace Constituent
      5. Basket Cap Constituent
      6. Rebuild Population
      7. Rebuild Financial Product
      8. Perform Capping for Financial Product
      9. Recalculate FP Output
      10. Rebuild Index Output
      11. End of Day Summary from Calculator
      12. End of Day Load from LVC
      13. Constituent Activation based on Security IPOs with Trades
   3. Issue Actions (Entered through EXACT)
      1. Listing
      2. Delisting
      3. Market Move
      4. Market Class Change
      5. Qual Status Change
      6. Symbol Change
      7. Name/CUSIP Change
      8. BourseID/SEDOL/Trading Currency Change
      9. TSO Change
      10. Valor ID Change
      11. ICB Sub Sector Change
      12. FFF Change
      13. When Distributed/When Issued Change
      14. Issue Type/Sub Issue Type Change
      15. ISIN Change
      16. Country Code Change
      17. Market Segment Change
      18. Incorporation Country Code Change
   4. Index Actions (details on how to enter through the workstation are below) – will process during offlines if entered with a future effective date
      1. AP AddPopulation
      2. DP DeletePopulation
      3. MP ModifyPopulation
      4. APC AddPopulationConstituent
      5. DPC DeletePopulationConstituent
      6. AFP AddFinancialProduct
      7. DFP DeleteFinancialProduct
      8. MFP ModifyFinancialProduct
      9. AFPO AddFinancialProductOutput
      10. DFPO DeleteFinancialProductOutput
      11. MFPO ModifyFinancialProductOutput
      12. MFPI ModifyFinancialProductIndex
      13. DA Delete Action Request
      14. API AddPopulationInclude
      15. DPI DeletePopulationInclude
      16. APE AddPopulationExclude
      17. DPE DeletePopulationExclude
      18. MPR ModifyPopulationRebuildDate
      19. REFP ReweightFinancialProduct
      20. MFPR ModifyFinancialProductRebuildDate
      21. RBFPO RebaseFinancialProductOutput
      22. MPUT Modify PriceUntilTraded for Constituent
      23. MOP Modify OverridePrice for Constituent
      24. MNOS Modify NumberOfShares for Constituent
      25. MTSO Modify TSO for Constituent
      26. MFFF Modify FreeFloatFactor for Constituent
      27. MST Modify State for Constituent
      28. MTAC Modify T1AdjustedClose for Constituent
      29. IWCA IW Corporate Action
      30. CFP Cap Financial Product
      31. RRPC Remove and Replace Population Constituent
      32. SPD Get Security Price Data
      33. ITD Get Index Tick Data
      34. HR Halt Rule
      35. VPRL View Population Rebuild List
      36. UNOS Upload NumberOfShares
      37. AWCO Add WCO
      38. MWCO Modify WCO
      39. ADPC Add/Delete Population Constituent
      40. MDIV Modify Divisor using SODIndexValue

**Index Action Tests (including Corporate Actions)**

1. AP Add Population
   1. Verify population can be added.
   2. Verify name is required.
   3. Verify effective date is required.
   4. Verify effective date has to be current or future.
   5. Verify type can be automatic or selected.
   6. Verify Rebuild Frequency is required.
      1. Daily
      2. Weekly
      3. Ad Hoc
      4. Quarterly
      5. Annually
      6. Monthly
      7. Semi-annually
   7. Verify for an automatic population a parent and population query are required.
   8. Verify for an automatic population a symbol can be added to the Include List.
   9. Verify for an automatic population a symbol can be added to the Exclude List.
   10. Verify when securities are added that belong to the Parent and Query for the population, they are automatically added to the population.
   11. Verify when securities are deleted that belong to the Parent and Query for the population, they are automatically deleted from the population.
2. DP Delete Population
   1. Verify population can be deleted.
   2. Verify effective date can be current or future.
   3. Verify cannot be deleted if it has FPs associated with it.
3. MP Modify Population
   1. Verify population can be modified.
   2. Verify effective date can be current or future.
   3. Verify Type can be changed.
   4. Verify Rebuild Frequency can be changed.
   5. Verify for Automatic the following can be changed:
      1. Parent
      2. Population Query
      3. Include List
      4. Exclude List
4. APC Add Population Constituent
   1. Verify a constituent can be added.
   2. Verify symbol must be valid.
   3. Verify effective date is required.
   4. Verify effective date can be current or future.
   5. Verify the constituent is added to any outputs that are built off the population.
   6. Verify the constituent values for the addition are correct.
   7. Verify the index values for the addition are correct.
   8. **Transaction Processing – Add Constituent**
      1. Set TSO to Security.TSO
      2. Set FFF to Security.FFF
      3. Set Number of Shares to Security.TSO for MC and MMC.
         1. MC – Set to Security.TSO
         2. MMC – Set to 0 (shares have to be updated manually)
         3. FFMMC – Set to 0
         4. **F**F – set to Round@1 (Security.TSO\*Security.FreeFloatFactor)
         5. PW – set to 1
         6. EW – set to 0
      4. Set State to Active (If IPO = True, set to Inactive**)**
      5. Set Previous Close to Security.PrimaryClose
      6. Set T1AdjustedClose to Security.T1AdjustedClose
      7. Set Market Value = Round@16(NumberofShares\*Round@8(Price\*SpotRate))
      8. Set Added Market Value = Round@16(NumberofShares\*Round@8(Price\*SpotRate))
5. DPC Delete Population Constituent
   1. Verify a constituent can be deleted.
   2. Verify effective date is required.
   3. Verify effective date can be current or future.
   4. Verify the constituent is deleted from any outputs that are built off the population.
   5. Verify the index values for the deletion are correct.
   6. **Transaction Processing – Remove Constituent**
      1. Set state to D.
      2. Set Removed Market Value = Round@16(Round@8(getPrice()\*SpotRate) \* NumberofShares)
6. ADPC Add/Delete Population Constituent
7. AFP Add Financial Product
   1. Verify Financial Product can be added.
   2. Verify name is required.
   3. Verify Effective date can be current or future.
   4. Verify Rebuild Frequency is required.
      1. Daily
      2. Weekly
      3. Ad Hoc
      4. Quarterly
      5. Annually
      6. Monthly
      7. Semi-annually
   5. Verify the following types (Share, Weighting, Corp Action) can be added:
      1. TSO, MC, USTSOMC
      2. FF, MC, USFFMC
      3. None, EW, USEW
      4. None, PW, USPW
      5. None, MMC, USMMC
   6. Verify a Population selection is required.
8. DFP Delete Financial Product
   1. Verify Financial Product can be deleted.
   2. Verify Effective Date can be current or future.
   3. Verify cannot be deleted if there are Outputs associated with it.
9. MFP Modify Financial Product
   1. Verify Financial Product can be modified.
   2. Verify Effective Date can be current or future.
   3. Verify Rebuild Frequency can be modified.
   4. Verify Shares Strategy, Weighting Strategy and Corp. Action Strategy can be changed according to the valid combinations in Add.
   5. Verify Population Selection can be modified.
10. AFPO Add Financial Product Output
    1. Verify FPO can be added.
    2. Verify a valid Financial Product must be selected.
    3. Verify Symbol is required.
    4. Verify Name is required.
    5. Verify Owner is required.
    6. Verify can be added with State as Active or Held
    7. Verify effective date is required.
    8. Verify Effective Date can be current or future.
    9. Verify Base Value must be greater than zero.
11. DFPO Delete Financial Product Output
    1. Verify FPO can be deleted.
    2. Verify effective date can be current or future.
12. MFPO Modify Financial Product Output
    1. Verify FPO can be modified.
    2. Verify symbol can be modified.
    3. Verify name can be modified.
    4. Verify owner can be modified
    5. Verify effective date can be current or future.
    6. Verify state can be modified.
13. MFPI Modify Financial Product Index
14. DA Delete Action Request
15. API Add Population Include
    1. Verify can be added.
    2. Verify effective date can be current or future.
16. DPI Delete Population Include
    1. Verify can be deleted.
    2. Verify effective date can be current or future.
17. APE Add Population Exclude
    1. Verify can be added.
    2. Verify effective date can be current or future.
18. DPE Delete Population Exclude
    1. Verify can be added.
    2. Verify effective date can be current or future.
19. MPR Modify Population Rebuild Date
    1. Verify rebuild date can be changed.
    2. Verify effective date can be current or future.
    3. Verify population is rebuilt on the date entered.
20. MDIV Modify Divisor using SOD Index Value - Intraday Override
    1. Output/Intraday Override
    2. Enter SOD Index Value and Index Previous Close
    3. **Transaction Processing – Modify Divisor using SODIndexValue**
       1. Set SODIndexValue to SODIndexValue entered by User
       2. Set PreviousClose to PreviousClose entered by User
       3. Set Divisor = Round@16(SODMarketValue/SODIndexValue) – Setting Divisor for Price Return Index
       4. Calculate values for Derived Indices
          1. Calculation for Settlement Index
             1. Set PreviousClose = Parent.PreviousClose
             2. Set Divisor = Parent.Divisor
             3. Set SODIndexValue = Parent.SODIndexValue
          2. Calculation for Gross Total Return Index
             1. Set Divisor = Parent.Divisor
             2. Set IDP = [Round@16(CashDividendMarketValue/Parent.Divisor)](mailto:Round@16(CashDividendMarketValue/Parent.Divisor)) only if CashDividendMarketValue present else IDP = 0
             3. If PreviousClose == NULL Then SODIndexValue = Parent.SODIndexValue + IDP
             4. Else SODIndexValue = Round@11(Round@16((Parent.SODIndexValue + IDP)/Parent.SODIndexValue) \* PreviousClose)
21. REFP Reweight Financial Product
    1. FP Details/Reweight Equal-Weighted Index
    2. Enter Effective Date and Equal Weighted Market Cap
    3. **Testing of EW Rebalance**
       1. Find request to rebalance
       2. select rf.\* from ActionRequests ar, ReqFP rf where ar.ReqID = rf.ReqIDand ar.Action='REFP'and ar.EffectiveDate='2012-03-27';
       3. Record this value from record:
          1. EqualWeightedMarketCap = 100000000.00000000
       4. Make sure was written to GIDS table
          1. select \* from SYN\_GIDS\_niw\_iss\_index\_data where ISSuniqueId = 40220129999 and index\_symbol like 'NDXE';
       5. Check Effective Date – should be date effective, not date processed
       6. Check process log for Before and After values
          1. select \* from ProcessLog where reqid = 82271 and LastUpdateTimestamp > '2012-03-26 23:00:00.000' order by ID desc
       7. Use calculation to verify # of shares changes: Round@1(EWMC/Round@8(Price\*SR))
          1. Before ReCalc ID: 9310,FPO\_ID: 33,SecurityID: 8,State: A,TSO: 9323700000000000000000000,FreeFloatFactor: 100000000,OverridePrice: null,PriceUntilTraded: null,NumberOfShares: 1707740000000000000000,PreviousClose: 60698000000,PreviousSpotRate: 100000000,PreviousNumberOfShares: 1707740000000000000000,OpeningPrice: null,ClosingPrice: null,SpotRate: 100000000,DividendSpotRate: null,T1AdjustedClose: 60698000000,T1CashAdjustedClose: 60698000000,SpecialDividendPrice: 500000000,CashDividendPrice: 0,TSOMarketValue: null,SplitMarketValue: 0,AddedMarketValue: null,RemovedMarketValue: null,MarketValue: 1036564025200000000000000,SpecialDividendMarketValue: 8538700000000000000000,CashDividendMarketValue: 0
          2. After ReCalc ID: 9310,FPO\_ID: 33,SecurityID: 8,State: A,TSO: 9323700000000000000000000,FreeFloatFactor: 100000000,OverridePrice: null,PriceUntilTraded: null,NumberOfShares: 1647500000000000000000,PreviousClose: 60698000000,PreviousSpotRate: 100000000,PreviousNumberOfShares: 1707740000000000000000,OpeningPrice: null,ClosingPrice: null,SpotRate: 100000000,DividendSpotRate: null,T1AdjustedClose: 60698000000,T1CashAdjustedClose: 60698000000,SpecialDividendPrice: 500000000,CashDividendPrice: 0,TSOMarketValue: -36564475200000000000000,SplitMarketValue: 0,AddedMarketValue: null,RemovedMarketValue: null,MarketValue: 999999550000000000000000,SpecialDividendMarketValue: 8538700000000000000000,CashDividendMarketValue: 0
       8. Example: Round@1(EWMC/Round@8(Price\*SR))
          1. (Price\*SR) = 606.98\*1 = 606.98
          2. Round@8 – already done – 606.98
          3. 100000000/606.98 = 164750.07413753336189
          4. Round@1 = 164750
22. MFPR Modify Financial Product Rebuild Date
    1. Verify rebuild date can be changed.
    2. Verify effective date can be current or future.
    3. Verify FP is rebuilt on the date entered.
23. RBFPO Rebase Financial Product Output
    1. Verify FPO can be rebased.
    2. Verify effective date can be current or future.
    3. Verify base value must be numeric.
    4. Verify FPO is rebased according to value entered on the effective date.
24. MPUT Modify Price Until Traded for Constituent
    1. Verify price until traded can be updated.
    2. Verify effective date can be current or future.
    3. Verify price until traded must be a valid price.
    4. Verify Adjust Divisor can be selected.
    5. Verify PUT is updated to the price entered on the date entered.
    6. Verify if Adjust Divisor is selected, the Divisor is updated.
    7. Verify this can be done at 4 different levels:
       1. All Securities
       2. FP Level
       3. Population Level
       4. Tree Level
    8. **Transaction Processing – Modify Price Until Traded**
       1. Set Basket.PriceUntilTraded to Price Until Traded entered by User
       2. Calculate Basket Price
       3. Set MarketValue = Round@16(NumberOfShares \* Round@8(Price \* SpotRate))
       4. Set AddedMarketValue = AddedMarketValue + Round@16(NumberOfShares \* Round@8(Price \* SpotRate))
25. MOP Modify Override Price for Constituent
    1. Verify override price can be updated.
    2. Verify effective date can be current or future.
    3. Verify override price must be a valid price.
    4. Verify Adjust Divisor can be selected.
    5. Verify Override Price is updated to the price entered on the date entered.
    6. Verify if Adjust Divisor is selected, the Divisor is updated.
    7. Verify this can be done at 4 different levels:
       1. All Securities
       2. FP Level
       3. Population Level
       4. Tree Level
    8. **Transaction Processing – Modify Override Price**
       1. Set Basket.OverridePrice to Override Price entered by User
       2. Calculate Basket Price
       3. Set MarketValue = Round@16(NumberOfShares \* Round@8(Price \* SpotRate))
       4. Set AddedMarketValue = AddedMarketValue + Round@16(NumberOfShares \* Round@8(Price \* SpotRate))
26. MNOS Modify Number Of Shares for Constituent
    1. Verify number of shares can be updated.
    2. Verify effective date can be current or future.
    3. Verify number of shares must be numeric.
    4. Verify Adjust Divisor can be selected.
    5. Verify number of shares is updated on the date entered.
    6. Verify if Adjust Divisor is selected, the Divisor is updated.
    7. Verify this can be done at 4 different levels:
       1. All Securities
       2. FP Level
       3. Population Level
       4. Tree Level
27. MTSO Modify TSO for Constituent
    1. Verify TSO can be updated.
    2. Verify effective date can be current or future.
    3. Verify TSO must be numeric.
    4. Verify Adjust Divisor can be selected.
    5. Verify TSO is updated on the date entered.
    6. Verify if Adjust Divisor is selected, the Divisor is updated.
    7. Verify this can be done at 4 different levels:
       1. All Securities
       2. FP Level
       3. Population Level
       4. Tree Level
    8. **Transaction Processing – TSO Change**
       1. Set TSO to exact.tso
       2. Set Number of shares according to type
          1. For MC = eXact.TSO
          2. For FF = Round@1 (exact.tso \* basket.FreeFloatFactor)
          3. For PW and EW – do not change
          4. For MMC = basket.NumberOfShares + Round@1(basket.NumberOfShares \* (Round@16( (exact.tso-OLDTSO)/OLDTSO)))
          5. For FFMMC = NumberOfShares + Round@1(NumberOfShares \* Round@16((Round@1(TSO\*FFF) – Round@1(OLDTSO\*FFF) /Round@1(OLDTSO\*FFF))))
       3. Set Market Value = Round@16(basket.NumberofShares\*Round@8(getPrice()\*basket.SpotRate)). 
          1. PW and EW (no change)
       4. Set TSOMarketValue = TSOMarketValue + Round@16( (basket.NumberofShares-OldShares)\*Round@8(getPrice()\*basket.SpotRate) )
          1. PW and EW (no change)
28. MFFF Modify Free Float Factor for Constituent
    1. Verify Free Float Factor can be updated.
    2. Verify effective date can be current or future.
    3. Verify Free Float Factor must be numeric.
    4. Verify Adjust Divisor can be selected.
    5. Verify Free Float Factor is updated on the date entered.
    6. Verify if Adjust Divisor is selected, the Divisor is updated.
    7. Verify this can be done at 4 different levels:
       1. All Securities
       2. FP Level
       3. Population Level
       4. Tree Level
    8. **Transaction Processing – FFF Change**
       1. Set to exact.FFF
       2. Set number of shares according to type
          1. MC, EW, PW, and MMC – No change
          2. FF = Round@1(exact.fff \* basket.TSO)
          3. FFMMC - NumberOfShares + Round@1(NumberOfShares \* Round@16((Round@1(basket.TSO\*FFF) – Round@1(basket.TSO\*OLDFFF))/Round@1(TSO\*OLDFFF))))
       3. Set Market Value for FF and FFMMC
          1. = Round@16(basket.NumberofShares\*Round@8(getPrice()\*basket.SpotRate)**)**
       4. Set TSO Market Value for FF and FFMMC
          1. = Round@16 (((basket.NumberofShares-OldShares)[\*Round@8(getPrice()\*basket.SpotRate))](mailto:*Round@8(getPrice()*basket.SpotRate)))
29. MTSO Modify T1 Adjusted Close for Constituent
    1. Verify T1 can be updated.
    2. Verify effective date can be current or future.
    3. Verify T1 must be a price.
    4. Verify Adjust Divisor can be selected.
    5. Verify T1 is updated on the date entered.
    6. Verify if Adjust Divisor is selected, the Divisor is updated.
    7. Verify this can be done at 4 different levels:
       1. All Securities
       2. FP Level
       3. Population Level
       4. Tree Level
    8. **Transaction Processing – Modify T1AdjustedClose**
       1. If ScopeOfChange = ‘Security level’ then set Security.T1AdjustedClose to T1AdjustedClose entered by User
       2. Set Basket.T1AdjustedClose to T1AdjustedClose entered by User
       3. Calculate Basket Price
       4. Set MarketValue = Round@16(NumberOfShares \* Round@8(Price \* SpotRate))
30. MST Modify State for Constituent
    1. Verify State can be updated.
    2. Verify effective date can be current or future.
    3. Verify State can be updated to Active, Held, Inactive, Deleted and None.
    4. Verify Adjust Divisor can be selected.
    5. Verify State is updated on the date entered.
    6. Verify if Adjust Divisor is selected, the Divisor is updated.
    7. Verify this can be done at 4 different levels:
       1. All Securities
       2. FP Level
       3. Population Level
       4. Tree Level
    8. **Transaction Processing – Modify State**
31. Set Basket.State to State selected by User
32. If Basket.State = ‘A’
    1. Set NumberOfShares according to Type
       1. MC – Set to Security.TSO
       2. MMC – Set to security.TSO (for now) awaiting Upload shares transaction
       3. FFMMC - Set to Round@1 (Security.TSO \* security.FFF) (for now) awaiting Upload shares transaction
       4. FF – set to Round@1 (Security.TSO\*Security.FreeFloatFactor)
       5. PW – set to 1
       6. EW – set to Round@1(FP.EqualWeightedMarketCap/Round@8(FP\_Basket.T1AdjustedClose\*FP\_Basket.SpotRate))
    2. Set MarketValue = Round@16(NumberOfShares \* Round@8(Price \* SpotRate))
    3. Set AddedMarketValue = Round@16(NumberOfShares \* Round@8(Price \* SpotRate))
    4. If Basket.State = ‘I’ Set RemovedMarketValue = Round@16(NumberOfShares \* Round@8(Price \* SpotRate))
33. RRPC Remove and Replace Population Constituent
    1. Verify a constituent can be removed and replaced with another one.
    2. Verify a valid symbol must be entered.
    3. Verify the effective date can be current or future.
    4. Verify the symbol selected is removed on the effective date.
    5. Verify the symbol entered is added on the effective date.
    6. **Transaction Processing – Remove and Replace Constituent**
       1. Set OldBasket.State = D
       2. Set NewBasket.TSO to Security.TSO
       3. Set NewBasket.FFF to Security.FFF
       4. Set NewBasket.State to Active (If IPO = True set to Inactive)
       5. If Active, set NewBasket.T1AdjustedClose to Security.T1AdjustedClose
       6. If Active, set NewBasket.ClosingPrice to Security.ClosingPrice
       7. Set Number of Shares for NewBasket as
       8. NewBasket.NumberOfShares =
          1. USTSOMC = TSO
          2. USFFMC = TSO \* FFF
          3. USFFMMC = 0 (shares have to be changed manually)
          4. USEW = Removed MV
          5. USMMC = 0 (shares have to be changed manually)
          6. PW = 1 or 100,000 – whichever the removed one was
       9. Set NewBasket.MarketValue = [Round@16(NewBasket.NumberOfShares](mailto:Round@16(NewBasket.NumberOfShares) \* [Round@8(NewBasket.Price](mailto:Round@8(NewBasket.Price) \* NewBasket.SpotRate))
       10. Set NewBasket.AddedMarketValue = [Round@16(NewBasket.NumberOfShares](mailto:Round@16(NewBasket.NumberOfShares) \* [Round@8(NewBasket.Price](mailto:Round@8(NewBasket.Price) \* NewBasket.SpotRate))
       11. Set OldBasket.RemovedMarketValue = OldBasket.MarketValue
34. CFP Cap Financial Product
35. RRPC Remove and Replace Population Constituent
36. SPD Get Security Price Data
37. ITD Get Index Tick Data
38. HR Halt Rule
39. VPRL View Population Rebuild List
40. UNOS Upload Number Of Shares
    1. Verify number of shares for multiple securities can be updated.
    2. Verify effective date can be current or future.
    3. Verify a file can be selected to upload.
    4. Verify the file must contain symbol, ID and Number of Shares.
    5. Verify the number of shares is updated on the date entered.
41. AWCO Add WCO
42. MWCO Modify WCO
43. IWCA IW Corporate Action
    1. Verify Corporate Action can be applied.
    2. Verify effective date can be current or future.
    3. Verify this can be done at 4 different levels:
       1. All Securities
       2. FP Level
       3. Population Level
       4. Tree Level
    4. **Transaction Processing – Corp Actions (Dividends, Splits etc.)**
       1. Old T1 set to basket.T1AdjustedClose
       2. Old Shares set to basket.NumberOfShares
       3. Old TSO set to basket.TSO
       4. DivdAdjFactor set to (if CashAdj=Y then FP.ShariaDivdPctAmount else 1)
       5. CashAdj Flag
          1. Default eXact.CASH\_ADJ\_FL = Y for XC and CS
          2. Default eXact.CASH\_ADJ\_FL = N for SO, XR, XW, XX, CP
       6. IMOrdinaryAmount = Cash Amount – Special Amount
       7. Get Price() = If Override<>NULL use it, else if T1Adjust<>NULL use it, else if PUT<>NULL use it, else NULL
       8. Basket.SpecialDividendPrice = Round@8(Special Amount \* DivdAdjFactor)
       9. basket.CashDividendPrice = Round@8(IMOrdinaryAmount \* DivdAdjFactor)
       10. basket.T1AdjustedClose
           1. If Adjust T1 Flag = Y and Apply Cash Before Stock Flag = Y
              1. Round@8((basket.T1AdjustedClose - basket.SpecialDividendPrice) / STOCK\_SPLIT\_QT)
           2. If Adjust T1 Flag = Y and Apply Cash Before Stock Flag = N
              1. Round@8(basket.T1AdjustedClose/STOCK\_SPLIT\_QT - basket.SpecialDividendPrice)
           3. If Adjust T1 Flag = N
              1. Round@8(basket.T1AdjustedClose/STOCK\_SPLIT\_QT)
       11. basket.CashDividendMarketValue
           1. If Apply Cash Before Stock = Y
              1. Round@16(Round@8(basket.CashDividendPrice \* basket.spotRate) \* OldShares)
           2. If Apply Cash Before Stock = N
              1. Round@16(Round@8(basket.CashDividendPrice\*basket.spotRate) \* Round@1(OldShares\*STOCK\_SPLIT\_QT))
       12. basket.TSO = Round@1(basket.TSO \* STOCK\_SPLIT\_QT)
       13. basket.NumberOfShares
           1. For USTSOMC = basket.TSO
           2. For USMMC = basket.NumberOfShares + Round@1(basket.NumberOfShares\*Round@16(basket.TSO - OLDTSO)/OLDTSO))
           3. For USFFMMC = basket.NumberOfShares + Round@1(basket.NumberOfShares\*Round@16(Round@1(basket.TSO\*basket.FFF)–Round@1(OldTSO\*basket.FFF) /Round@1(OLDTSO\*FFF) )
           4. For USEW –
              1. If ADJUST\_EW\_DRM\_FL = Y : Round@1(Round@16(OldShares \* OldT1)/basket.T1AdjustedClose)
              2. If ADJUST\_EW\_DRM\_FL = N: NO CHANGE
           5. For USFFMC: Round@1(Round@1(OldTSO\*STOCK\_SPLIT\_QT)\*basket.FreeFloatFactor)
           6. For USPW - DO NOTHING
       14. basket.SplitMarketValue = SplitMarketValue (only for multiple splits – will be 0 if 1 split)+ (Round@16(OldShares\*Round@8(OldT1\*basket.SpotRate)) -

Round@16(basket.NumberOfShares\*Round@8(getPrice()\*basket.SpotRate)))

* + 1. basket.MarketValue = [Round@16(basket.NumberOfShares\*Round@8(getPrice()\*basket.SpotRate))](mailto:Round@16(basket.NumberOfShares*Round@8(getPrice()*basket.SpotRate)))
  1. **Validations done when Corporate Actions are processed:**

1. IF ADJUST\_T1\_FL = Y AND SPECIAL\_AMOUNT = 0 or NULL AND STOCK\_SPLIT\_QT <> 0 or 1
   * THEN error "Special Amount can be ZERO or NULL only if Split Factor Quantity is not equal to 0 or 1.”
2. IF ADJUST\_T1\_FL = Y and SPECIAL\_AMOUNT > T1AdjustedClose and CASH\_BEFORE\_STOCK = Y and STOCK\_SPLIT\_QT > 1
   * THEN error "MultiCorp SPECIAL\_AMOUNT Greater than T1AdjustedClose"
3. IF CASH\_AMOUNT = 0 and STOCK\_SPLIT\_QT = 1
   * THEN error "MultiCorp Requires a CASH\_AMOUNT or a STOCK\_SPLIT\_QT"
4. IF SPECIAL\_AMOUNT > CASH\_AMOUNT
   * THEN error "MultiCorp SPECIAL\_AMOUNT Greater than CASH\_AMOUNT"
5. IF STOCK\_SPLIT\_QT NULL OR 0 OR < 0
   * THEN error "MultiCorp requires a STOCK\_SPLIT\_QT Greater than 0 or = 1"
6. IF ADJUST\_T1\_FL <> Y AND <> N
   * THEN error "MultiCorp requires ADJUST\_T1\_FL to be Y or N"
7. IF APPLY\_CASH\_BEFORE\_STOCK\_FL <> Y AND <> N
   * THEN error "MultiCorp requires ADJUST\_T1\_FL to be Y or N"
8. IF APPLY\_CASH\_BEFORE\_STOCK\_FL = Y AND (STOCK\_SPLIT\_QT = 1 or CASH\_AMOUNT = 0)
   * THEN error "MultiCorp Requires CASH\_AMOUNT > 0 and a STOCK\_SPLIT\_QT <> 1"

Corporate Actions Types and Valid combinations:

1. **CP Stock Div. payable in another company**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ACBS | SFQ | Cash | T1 Adj | EWDRM | Spec.Flag | Spec.Amt. | Cash Adj |
| N | 1.5 | 2.00 | N | Y | N |  | Y |
| N | 1.5 | 2.00 | N | Y | N |  | N |
| Y | 1.5 | 2.00 | N | Y | N |  | Y |
| Y | 1.5 | 2.00 | N | Y | N |  | N |
| N | 1.5 | 2.00 | Y | Y | N | 1.2 | Y |
| N | 1.5 | 2.00 | Y | Y | Y | 1.2 | Y |
| Y | 1.5 | 2.00 | Y | Y | N | 1.2 | Y |
| Y | 1.5 | 2.00 | Y | Y | Y | 1.2 | Y |
| N | 1.5 | 2.00 | Y | Y | N | 1.2 | N |
| N | 1.5 | 2.00 | Y | Y | Y | 1.2 | N |
| Y | 1.5 | 2.00 | Y | Y | N | 1.2 | N |
| Y | 1.5 | 2.00 | Y | Y | Y | 1.2 | N |
| N | .5 | 2.00 | N | Y | N |  | Y |
| N | .5 | 2.00 | N | Y | N |  | N |
| Y | .5 | 2.00 | N | Y | N |  | Y |
| Y | .5 | 2.00 | N | Y | N |  | N |
| N | .5 | 2.00 | Y | Y | N | 1.2 | Y |
| N | .5 | 2.00 | Y | Y | Y | 1.2 | Y |
| Y | .5 | 2.00 | Y | Y | N | 1.2 | Y |
| Y | .5 | 2.00 | Y | Y | Y | 1.2 | Y |
| N | .5 | 2.00 | Y | Y | N | 1.2 | N |
| N | .5 | 2.00 | Y | Y | Y | 1.2 | N |
| Y | .5 | 2.00 | Y | Y | N | 1.2 | N |
| Y | .5 | 2.00 | Y | Y | Y | 1.2 | N |

1. **CS Cash and Stock Dividend or Split**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ACBS | SFQ | Cash | T1 Adj | EWDRM | Spec.Flag | Spec.Amt. | Cash Adj |
| N | 1.5 | 2.00 | N | N | N |  | Y |
| N | 1.5 | 2.00 | N | N | N |  | N |
| Y | 1.5 | 2.00 | N | N | N |  | Y |
| Y | 1.5 | 2.00 | N | N | N |  | N |
| N | 1.5 | 2.00 | Y | N | N | 1.2 | Y |
| N | 1.5 | 2.00 | Y | N | Y | 1.2 | Y |
| Y | 1.5 | 2.00 | Y | N | N | 1.2 | Y |
| Y | 1.5 | 2.00 | Y | N | Y | 1.2 | Y |
| N | 1.5 | 2.00 | Y | N | N | 1.2 | N |
| N | 1.5 | 2.00 | Y | N | Y | 1.2 | N |
| Y | 1.5 | 2.00 | Y | N | N | 1.2 | N |
| Y | 1.5 | 2.00 | Y | N | Y | 1.2 | N |
| N | .5 | 2.00 | N | N | N |  | Y |
| N | .5 | 2.00 | N | N | N |  | N |
| Y | .5 | 2.00 | N | N | N |  | Y |
| Y | .5 | 2.00 | N | N | N |  | N |
| N | .5 | 2.00 | Y | N | N | 1.2 | Y |
| N | .5 | 2.00 | Y | N | Y | 1.2 | Y |
| Y | .5 | 2.00 | Y | N | N | 1.2 | Y |
| Y | .5 | 2.00 | Y | N | Y | 1.2 | Y |
| N | .5 | 2.00 | Y | N | N | 1.2 | N |
| N | .5 | 2.00 | Y | N | Y | 1.2 | N |
| Y | .5 | 2.00 | Y | N | N | 1.2 | N |
| Y | .5 | 2.00 | Y | N | Y | 1.2 | N |

1. **RS Reverse Split -**

**XS Stock Dividend or Split**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ACBS | SFQ | Cash | T1 Adj | EWDRM | Spec.Flag | Spec.Amt. | Cash Adj |
| N | 1.25 |  | N | N | N |  | N |
| N | .25 |  | N | N | N |  | N |

1. **SO Spin Off ,**

**XR Ex-Rights,**

**XW Ex-Warrants**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ACBS | SFQ | Cash | T1 Adj | EWDRM | Spec.Flag | Spec.Amt. | Cash Adj |
| N | 1 | 2.00 | N | N | N |  | Y |
| N | 1 | 2.00 | N | Y | N |  | Y |
| N | 1.5 |  | N | N | N |  | Y |
| N | 1.5 |  | N | Y | N |  | Y |
| N | .5 |  | N | N | N |  | Y |
| N | .5 |  | N | Y | N |  | Y |
| N | 1 |  | N | N | N | 2.00 | Y |
| N | 1 |  | N | N | Y | 2.00 | Y |
| N | 1 |  | N | Y | N | 2.00 | Y |
| N | 1 |  | N | Y | Y | 2.00 | Y |
| N | 1 | 2.00 | N | N | N |  | N |
| N | 1 | 2.00 | N | Y | N |  | N |
| N | 1.5 |  | N | N | N |  | N |
| N | 1.5 |  | N | Y | N |  | N |
| N | .5 |  | N | N | N |  | N |
| N | .5 |  | N | Y | N |  | N |
| N | 1 |  | N | N | N | 2.00 | N |
| N | 1 |  | N | N | Y | 2.00 | N |
| N | 1 |  | N | Y | N | 2.00 | N |
| N | 1 |  | N | Y | Y | 2.00 | N |

1. **XC Cash Dividend,**

**XX Any Other Type**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ACBS | SFQ | Cash | T1 Adj | EWDRM | Spec.Flag | Spec.Amt. | Cash Adj |
| N | 1 | 2.00 | N | N | N |  | Y |
| N | 1 | 2.00 | Y | N | N |  | Y |
| N | 1 | 3.00 | Y | N | Y | 1.5 | Y |
| N | 1 | 3.00 | Y | N | N | 1.5 | Y |
| N | 1 | 2.00 | N | N | N |  | N |
| N | 1 | 2.00 | Y | N | N |  | N |
| N | 1 | 3.00 | Y | N | Y | 1.5 | N |
| N | 1 | 3.00 | Y | N | N | 1.5 | N |