

List of Use Cases Implemented by the AP100, AP110, and AP115 Programs

The RPG programs **AP100**, **AP110**, and **AP115** form a call stack for processing Accounts Payable (A/P) voucher transactions on IBM midrange systems (e.g., AS/400 or iSeries). Together, they implement a single cohesive use case:

- 1. **Use Case: Process and Validate A/P Voucher Transactions**
 - **Description:** This use case involves the entry, validation, editing, and reporting of A/P voucher transactions, including header and detail records, for various payment types (e.g., prepaid checks, ACH, wire transfers, employee expenses, utility auto-payments). The process ensures data integrity, validates against vendor, company, G/L, and inventory data, and generates reports for errors and totals.
 - **Components:**
 - **AP100:** Handles interactive entry and validation of voucher transactions via screen formats (**AP100S1**, **AP100S2**, **AP100S3**, **AP100S5**), updating transaction files (**APTRAN**, **APCONT**) and calling **AP1011** for freight calculations.
 - **AP110:** Validates voucher transactions from **APTRAN**, checks for errors (e.g., duplicate invoices, invalid G/Ls), updates prepaid check records (**APCHKT**), and produces an edit report (**APLIST**).
 - **AP115:** Validates prepaid checks, ensuring non-void checks are not already open and void checks match the full amount, generating an error report (**APLIST**).

This single use case encompasses the entire workflow of entering, validating, and reporting A/P voucher transactions, with each program handling a specific aspect of the process.

Function Requirement Document: Process and Validate A/P Voucher Transactions

Function Requirement Document: Process and Validate A/P Voucher Transactions

Overview

This function processes and validates Accounts Payable (A/P) voucher transactions, including header and detail records, for various payment types (prepaid checks, ACH, wire transfers, employee expenses, utility auto-payments). It ensures data integrity by validating inputs against company, vendor, G/L, and inventory data, calculates due dates and discounts, updates transaction and check files, and generates reports for errors and totals.

Inputs

- **Company Number (CONO):** 2-digit identifier for the company.
- **Vendor Number (VEND):** 5-digit identifier for the vendor.
- **Entry Number (ENT#):** 5-digit transaction identifier (auto-generated or user-provided).
- **Invoice Number (INV#):** 20-character vendor invoice number.
- **Invoice Amount (IAMT):** 11.2-digit total invoice amount.

- **Invoice Date (INDT)**: 6-digit vendor invoice date (MMDDYY).
- **Due Date (DUOT)**: 6-digit due date (MMDDYY, calculated or user-provided).
- **Discount Due Date (DSDT)**: 6-digit discount due date (MMDDYY, calculated or user-provided).
- **Hold Code (HOLD)**: 1-character code (H=hold, A=ACH, W=wire transfer, E=employee expense, U=utility auto-payment).
- **Prepay Code (PAID)**: 1-character code (P=prepaid, A=ACH, E=employee expense, U=utility auto-payment).
- **Prepaid Check Number (PPCK)**: 6-digit check number for prepaid transactions.
- **Single Check Flag (SNGL)**: 1-character flag (S=single check).
- **Canceled Voucher (CNVO)**: 5-digit canceled voucher number.
- **Purchase Order Number (PONO)**: 30-character purchase order number.
- **Sales Order Number (SORN)**: 6-digit sales order number.
- **Carrier ID (CAID)**: 6-character carrier identifier.
- **Process Type (PTYP)**: 6-character process type (NORMAL, PAPER, ARGLMS).
- **Freight Total (FRTL)**: 7.2-digit total freight amount to allocate.
- **Detail Lines**:
 - **Sequence Number (ENSQ)**: 3-digit line sequence.
 - **Expense G/L (EXGL)**: 8-digit expense general ledger account.
 - **Amount (AMT)**: 8.2-digit line amount.
 - **Discount Amount (DISC)**: 8.2-digit discount amount.
 - **Discount Percentage (DSPC)**: 3.2-digit discount percentage.
 - **Gallons (GALN)**: 4.2-digit gallons quantity.
 - **Receipt Number (RCPT)**: 7-digit receipt number.
 - **Receipt Code (CLCD)**: 1-character code (O=open, C=closed).
 - **Freight Amount (FRAM)**: 4.2-digit freight amount per line.
 - **Product Amount (PRAM)**: 6.2-digit product amount per line.

Outputs

- **Updated Files**:
 - **APTRAN**: Transaction header and detail records.
 - **APCHKT**: Prepaid check records.
 - **APCONT**: Updated with next entry number.
 - **APSTAT**: Error status (Y for errors, N otherwise).
- **Report (APLIST)**: Printed report listing transaction details, errors, warnings, and totals (invoices, prepaid amounts, vendor hash).

Process Steps

1. Initialize:

- Retrieve system date and time.
- Validate company number (CONO) against APCONT. If invalid or deleted, return error.
- Initialize accumulators for invoice counts, amounts, discounts, and prepaid totals.
- Set process type (PTYP) to NORMAL if blank.

2. Validate Header:

- Ensure CONO exists in APCONT, not deleted ($ACDEL \neq 'D'$).
- Validate VEND against APVEND, ensuring not deleted ($VNDEL \neq 'D'$), not inactive ($VNDEL \neq 'I'$), and name not blank.
- Verify INV# is non-blank and unique (check APTRNX, APINVH, APOPNC for non-prepaid, non-canceled, non-wire-transfer transactions).
- Ensure INDT is non-zero and not older than one year (warning only).
- Ensure IAMT is non-zero and matches sum of detail amounts ($AMT + FRAM$).
- Validate HOLD (H, A, W, E, U) and PAID (P, A, E, U).
- If PAID is set, ensure PPCK is provided.
- Calculate DUDT and DSDT using terms (VNTERM) from GSTABL (net days, discount days).
- Validate ATAPGL and ATBKGL against GLMAST, ensuring not deleted or inactive.
- If SORN $\neq 0$, prohibit RCPT and GALN.
- For freight invoices ($FRTL \neq 0$), allocate amounts to detail lines (call AP1011).

3. Validate Detail Lines:

- Validate EXGL against GLMAST, ensuring not deleted or inactive.
- If GLPOCD = 'Y', ensure PONO is non-blank.
- Validate gallons/receipts:
 - If VNGRRQ = 'Y', require GALN and RCPT.
 - If VNGRRQ = 'N', prohibit GALN and RCPT.
 - If GLAPCD = 'Y' and $AMT > 0$, require GALN.
 - If $GALN > 0$, ensure $GLAPCD = 'Y'$.
 - If $RCPT \neq 0$, validate against INFIL1 or INTZH1 for sufficient quantity ($GALN \leq IHNQTY + IHNQTF - IHAPTQ - IHAPTF$) and no prior A/P postings.
 - Ensure CLCD is 'O' or 'C'.
- Validate discounts:
 - Ensure DISC and DSPC are not both non-zero.
 - If DISC or DSPC is non-zero, require $ACDSGL \neq 0$.
 - If $TBDISC = 0$, prohibit DISC and DSPC.
 - If $TBDISC \neq 0$, ensure $DSPC = TBDISC$ or both DISC and DSPC are non-zero.
 - If $DSDT \neq 0$ and $DSDT \leq \text{system date}$, issue warning.
 - Calculate $DISC = AMT * (DSPC / 100)$ if $DSPC \neq 0$.
- Calculate net amount: $NETAMT = AMT - DISC$.

4. Validate Prepaid Checks:

- For PAID transactions, update APCHKT with check amount ($ACCKAM = AMT - DISC$).
- Ensure non-void checks are not already open ($AMCODE \neq 'O'$).
- Ensure void checks are open ($AMCODE = 'O'$) and match full amount ($L1CKAM = AMCKAM$).

5. Update Files:

- Write/update APTRAN with header and detail records.
- Update APCONT with next entry number (ACNXTE).
- Write/update APCHKT with prepaid check records.
- Write APSTAT with error status (Y or N).

6. Generate Report:

- Produce **APLIST** report with:
 - Headers: Company, date, time, workstation, process type.
 - Details: Entry, vendor, invoice number, description, amounts, G/L, status.
 - Errors/Warnings: List entry numbers with issues (e.g., invalid vendor, duplicate invoice).
 - Totals: Invoice count, amounts, discounts, prepaid totals, vendor hash.

Business Rules

1. Company and Vendor:

- **CONO** must exist in **APCONT**, not deleted.
- **VEND** must exist in **APVEND**, not deleted or inactive, with non-blank name.

2. Invoice:

- **INV#** must be non-blank and unique (unless prepaid, canceled, or wire transfer).
- **IAMT** must be non-zero and match detail totals.
- **INDT** must be non-zero; warn if older than one year.

3. Payment Types:

- **HOLD**: 'H', 'A', 'W', 'E', 'U'.
- **PAID**: 'P', 'A', 'E', 'U', with **PPCK** required if set.
- **SNGL** = 'S' for single check processing.

4. Gallons and Receipts:

- If **VNGRRQ** = 'Y', require **GALN** and **RCPT**.
- If **VNGRRQ** = 'N', prohibit **GALN** and **RCPT**.
- If **GLAPCD** = 'Y' and **AMT** > 0, require **GALN**.
- If **GALN** > 0, require **GLAPCD** = 'Y'.
- **RCPT** must exist in **INFIL1** or **INTZH1** with sufficient quantity.
- **CLCD** must be 'O' or 'C'.

5. Purchase Orders:

- If **GLPOCD** = 'Y', require **PONO**.

6. Discounts:

- **DISC** and **DSPC** cannot both be non-zero.
- Require **ACDSGL** if **DISC** or **DSPC** is non-zero.
- If **TBDISC** = 0, prohibit **DISC** and **DSPC**.
- If **TBDISC** ≠ 0, ensure **DSPC** = **TBDISC** or both **DISC** and **DSPC** are non-zero.
- Warn if **DSDT** ≤ system date.

7. Prepaid Checks:

- Non-void checks must not be open.
- Void checks must be open and match full amount.
- Update **ACCKAM** = **AMT** - **DISC**.

8. Freight:

- If **FRTL** $\neq 0$, allocate amounts to detail lines via **AP1011**.

Calculations

- **Due Date (DUDT)**: Calculated from **INDT** + **TBNETD** (net days from **GSTABL**), adjusted for holidays/weekends.
- **Discount Due Date (DSDT)**: Calculated from **INDT** + **TBDISD** (discount days from **GSTABL**).
- **Discount Amount (DISC)**: If **DSPC** $\neq 0$, $DISC = AMT * (DSPC / 100)$.
- **Net Amount (NETAMT)**: $NETAMT = AMT - DISC$.
- **Check Amount (ACCKAM)**: $ACCKAM = AMT - DISC$ for prepaid checks.
- **Receipt Quantity**: $RNQTY = IHNQTY + IHNQTF - IHAPTQ - IHAPTF$ (from **INFIL1** or **INTZH1**).
- **Totals**:
 - $L1AMT = \Sigma(AMT)$, $L1PAMT = \Sigma(PRAM)$, $L1FAMT = \Sigma(FRAM)$, $L1DISC = \Sigma(DISC)$, $L1NET = L1AMT - L1DISC$ (per entry).
 - **L2AMT**, **L2PAMT**, **L2FAMT**, **L2DISC**, **L2NET**, **L2PPD**, **L2PPA**, **L2PPW**, **L2PPE** accumulate **L1** totals.

External Dependencies

- **Program Called**: **AP1011** (for freight amount allocation to detail lines when **FRTL** $\neq 0$).
- **Files**:
 - Input: **APCONT**, **APVEND**, **GLMAST**, **GSTABL**, **INFIL1**, **INTZH1**, **APTRNX**, **APOPNUC**, **APINVA**.
 - Update: **APTRAN**, **APCHKT**, **APSTAT**.
 - Output: **APLIST** (report).