



IBM Power Systems - IBM i

Modernisation, développement d'applications et DB2 sous IBM i  
*Technologies, outils et nouveautés 2013-2014*

13 et 14 mai 2014 – IBM Client Center Paris, Bois-Colombes

## **S15 - Modernisez votre code RPG avec Arcad Transformer RPG**

*Mercredi 14 mai – 09h00-10h30*

**Gilbert Fillatre**

## Sommaire

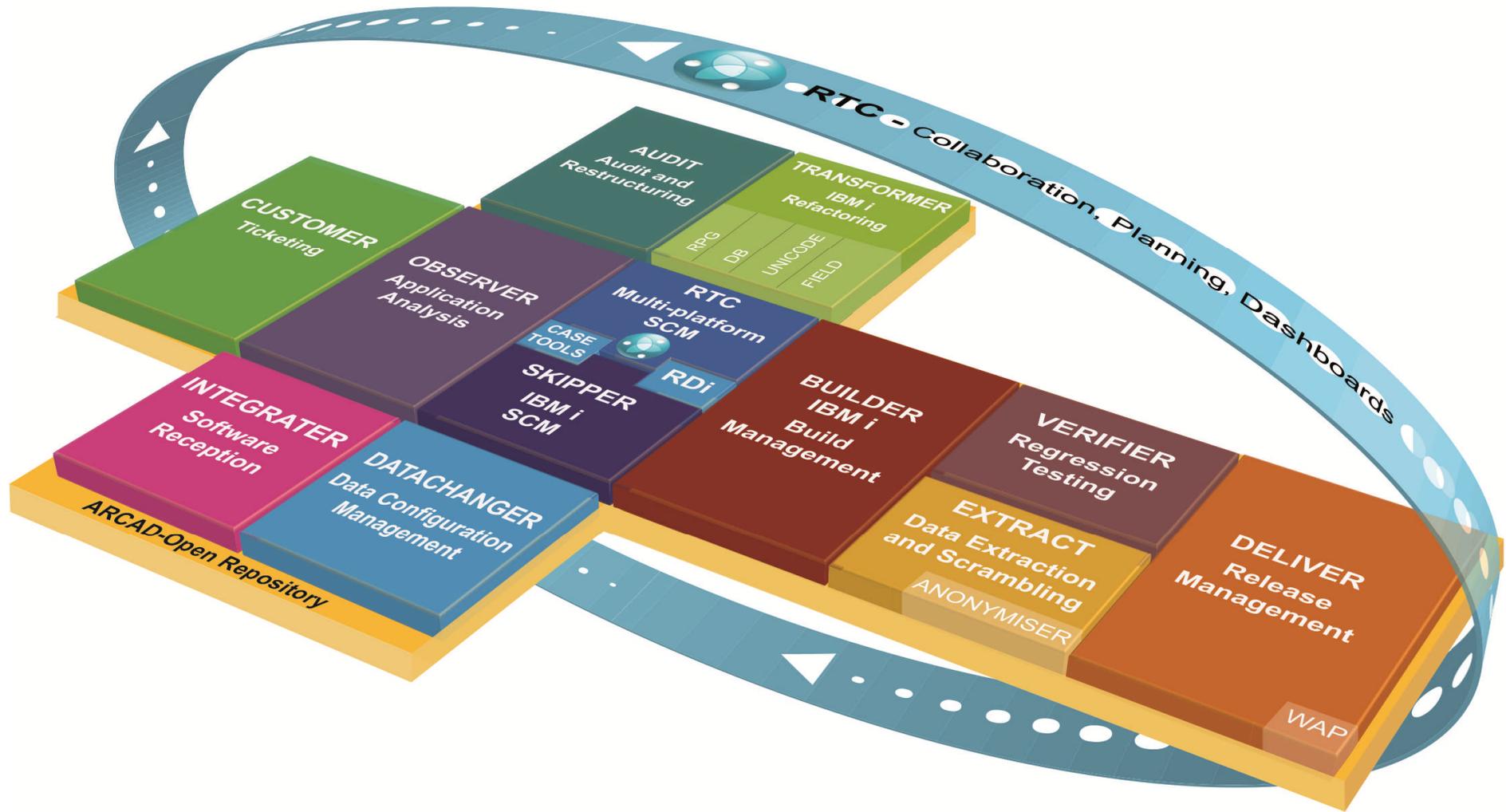
- ARCAD Software
- Principales évolutions du RPG
- Pourquoi convertir en RPGLE Free ?
- Principes généraux de la conversion
- Démonstration conversion
- Ecueils possibles lors de la conversion
- Conversions par instructions
- Conditions de vente, Chargement pour 10 essais

# A propos d'ARCAD Software

- Un acteur global sur le marché de l'ALM dans le monde IBM i avec un focus sur:
  - Enterprize modernisation
  - Software Configuration & Release Management
  - Test automation
- Né à l' 
- 22 ans, 1000 licences dans 35 pays
- Support technique 24/7
- Partenaire Rational technologie et business



# L'offre ARCAD



## Principales évolutions du RPG

- \* RPG (*Report Program Generator*) créé en 1959
- \* RPG II pour System/3
  - System/32 1975,
  - System/34, 1977,
  - System/36, 1983
- \* RPG III pour System 38 (1979) puis AS/400 (1987)
- \* RPG IV = RPGLE (1994) pour AS/400 – System i – IBM i
  - Compatibilité ascendante !

# RPG III

C - ARCAD07D\_297.ws

Fichier Edition Vue Communication Actions Fenêtre Aide

Hôte : ARCAD07D Port : 23 ID poste de travail : ZGF\_297\* Déconnexi

Colonnes . . : 1 100 Examen QTEMP/QRPGLSRC ARM120R1

```

SEU==>
0252.00 C*
0253.00 C* SI LA VERSION N'EST PAS ACTIVE: SETON 63
0254.00 C*
0255.00 C          ACT          IFEQ '*NO'
0256.00 C          SETON          63
0257.00 C          ENDIF
0258.00 C*
0259.00 C* SI MODIF DS BBL VERSIO DU DEVELOPPEUR: BIBLIOTHEQUE OBJET
0260.00 C* = *LIBL (ON NE SAIT PAS OU EST PHYSIQUEMENT L'OBJET
0261.00 C          VERCHG          IFEQ '*PGMRVER'
0262.00 C          MOVELDFT,7      POLIB 10
0263.00 C          ELSE
0264.00 C          MOVELDFT,1      POLIB -
0265.00 C          ENDIF
0266.00 C*
0267.00 C*
0268.00 C* SI MODIF TEXTE NON AUTORISEE: SETON 67
0269.00 C*
0270.00 C          CHGTX          IFEQ '*NO'
0271.00 C          SETON          67
0272.00 C          ENDIF
0273.00 C*
0274.00 C          Z-ADD7          INCR 40
0275.00 C          MOVEL 'ARM120R1' PGMQ
    
```

ME C 15/063

1902 - Le démarrage de la session a abouti

# RPGLE

```

C - ARCAD07D_297.ws
Fichier Edition Vue Communication Actions Fenêtre Aide
Hôte: ARCAD07D Port: 23 ID poste de travail: ZGF_297* Déconnexi
Colonnes . . . : 6 100 Examen QTEMP/QRPGLESRC
SEU==> ARM120R1
0256.00 C*
0257.00 C* SI LA VERSION N'EST PAS ACTIVE: SETON 63 910603
0258.00 C* 920623
0259.00 C ACT IFEQ '*NO' 941128
0260.00 C SETON 63 920623
0261.00 C ENDIF 920623
0262.00 C* 941128
0263.00 C* SI MODIF DS BBL VERSIO DU DEVELOPEUR: BIBLIOTHEQUE OBJET 941128
0264.00 C* = *LIBL (ON NE SAIT PAS OU EST PHYSIQUEMENT L'OBJET 941128
0265.00 C VERCHG IFEQ '*PGMRVER' 941128
0266.00 C MOVEL DFT(7) POLIB 10 941128
0267.00 C ELSE 941128
0268.00 C MOVEL DFT(1) POLIB 941128
0269.00 C ENDIF 941128
0270.00 C* 941128
0271.00 C* 940222
0272.00 C* SI MODIF TEXTE NON AUTORISEE: SETON 67 940222
0273.00 C* 940222
0274.00 C CHGTXT IFEQ '*NO' 940222
0275.00 C SETON 67 940222
0276.00 C ENDIF 940222
0277.00 C* 920623
0278.00 C Z-ADD 7 INCR 4 0 951124
0279.00 C MOVE *BLANKS RIEN 132 900627
ME C 17/071
1902 - Le démarrage de la session a abouti

```

- Conversion RPG → RPGLE par cmd OS : CVTRPGSRC

# RPGLE : facteur 2 étendu

```

F - ARCAD07D_297.ws
Fichier Edition Vue Communication Actions Fenêtre Aide
Hôte: ARCAD07D Port: 23 ID poste de travail: ZGF_297* Déconnexion
Colonnes . . : 6 100 Edition GILD1.00.N/QRPGLSRC
SEU==> ARM120R1
0297.00 C* 140428
0298.00 C* SI LA VERSION N'EST PAS ACTIVE: SETON 63 140428
0299.00 C* 140428
0300.00 C If ACT = '*NO' 140428
0301.00 C Eval *IN63 = '1' 140428
0302.00 C Endif 140428
0303.00 C* 140428
0304.00 C* SI MODIF DS BBL VERSIO DU DEVELOPPEUR: BIBLIOTHEQUE OBJET 140428
0305.00 C* = *LIBL (ON NE SAIT PAS OU EST PHYSIQUEMENT L'OBJET 140428
0306.00 C If VERCHG = '*PGMRVER' 140428
0307.00 C or VERCHG = '*PGMR' 140428
0308.00 C Eval POLIB = DFT(7) 140428
0309.00 C ELSE 941128
0310.00 C Eval POLIB = DFT(1) 140428
0311.00 C Endif 140428
0312.00 C* 140428
0313.00 C* SI MODIF TEXTE NON AUTORISEE: SETON 67 140428
0314.00 C* 140428
0315.00 C If CHGTXT = '*NO' 140428
0316.00 C Eval *IN67 = '1' 140428
0317.00 C Endif 140428
0318.00 C* 140428
0319.00 C Eval INCR = 7 140428
0320.00 C Eval RIEN = *Blanks 140428
MA F 02/009
1902 - Le démarrage de la session a abouti

```

# RPGLE avec syntaxe Free en Spéc. Calcul

```
F - ARCAD07D_297.ws
Fichier Edition Vue Communication Actions Fenêtre Aide
Hôte: ARCAD07D Port: 23 ID poste de travail: ZGF_297* Déconnexion
Colonnes . . : 6 100 Edition GILD1.00.N/QRPGLSRC
SEU==> ARM120R1
0257.00 // SI LA VERSION N'EST PAS ACTIVE: SETON 63 140428
0258.00 // 140428
0258.01 C/Free 140428
0259.00 If ACT = '*NO'; 140428
0260.00 *IN63 = '1'; 140428
0261.00 EndIf; 140428
0262.00 // 140428
0263.00 // SI MODIF DS BBL VERSIO DU DEVELOPPEUR: BIBLIOTHEQUE OBJET 140428
0264.00 // = *LIBL (ON NE SAIT PAS OU EST PHYSIQUEMENT L'OBJET 140428
0265.00 If VERCHG = '*PGMRVER' 140428
0266.00 or VERCHG = '*PGMR'; 140428
0267.00 POLIB = DFT(7); 140428
0268.00 Else; 140428
0269.00 POLIB = DFT(1); 140428
0270.00 EndIf; 140428
0271.00 // 140428
0272.00 // SI MODIF TEXTE NON AUTORISEE: SETON 67 140428
0274.00 If CHGTXT = '*NO'; 140428
0275.00 *IN67 = '1'; 140428
0276.00 EndIf; 140428
0277.00 // 140428
0278.00 INCR = 7; 140428
0279.00 RIEN = *Blanks; 140428
0279.01 /End-Free 140428
```

- Apparu en V5R1 en 2001

# RPGLE avec syntaxe Free complète \*

```
F - ARCAD07D_297.ws
Fichier Edition Vue Communication Actions Fenêtre Aide
Hôte: ARCAD07D Port: 23 ID poste de travail: ZGF_297* Déconnexion
Colonnes . . : 6 100 Edition GILD1.00.N/QRPGLSRC
SEU==> ARM120R1
0292.00 Dcl-Ds MBRINF; 140428
0293.00 TXTDES Char(50) Pos(85); 140428
0294.00 End-Ds; 140428
0295.00 Dcl-Ds OBJINF; 140428
0296.00 TXTOBJ Char(50) Pos(101); 140428
0297.00 End-Ds; 140428
0298.00 Dcl-F ARMVERF1 Keyed; 140428
0299.00 Dcl-F ARCAOPT Keyed USROPN; 140428
0300.00 Dcl-S POLIB Char(10); 140428
0301.00 Dcl-S INCR Packed(4:0); 140428
0302.00 Dcl-S RIEN Char(132); 140428
0303.00 // 140428
0304.00 // SI LA VERSION N'EST PAS ACTIVE: SETON 63 140428
0305.00 // 140428
0306.00 If ACT = '*NO'; 140428
0307.00 *IN63 = '1'; 140428
0308.00 EndIf; 140428
0309.00 // 140428
0310.00 // SI MODIF DS BBL VERSIO DU DEVELOPPEUR: BIBLIOTHEQUE OBJET 140428
0311.00 // = *LIBL (ON NE SAIT PAS OU EST PHYSIQUEMENT L'OBJET 140428
0312.00 If VERCHG = '*PGMRVER' 140428
0313.00 or VERCHG = '*PGMR'; 140428
0314.00 POLIB = DFT(7); 140428
0315.00 Else; 140428
```

- Apparu en V7R2 - TR7 en 2013
- \* sauf carte I / O + quelques exceptions



## Pourquoi convertir le RPGLE ?

- Disposer d'une syntaxe moderne (instructions multi-ligne, indentation, commentaires), similaire aux autres langages
- Attirer les jeunes développeurs
- Eliminer des vieilles instructions (incompréhensibles sans documentation)
- Se familiariser avec la nouvelle syntaxe pour les anciens développeurs
- Harmoniser tous vos sources RPG
  - Anciens sources ayant évolué depuis près de 30 ans
  - Nouveaux sources

## Conversion avec Arcad Transformer RPG

- Conversion progressive, source par source, au fur à mesure des besoins
- Conversion de masse
- Exécutable sous RDI (ou RDP)
  - Explorateur distant
  - PlugIns Arcad Skipper
- Exécutable en 5250
  - Commande ACVTRPGFRE
  - Au sein d'Arcad Skipper

# Principes généraux de la conversion (1)

- Objectif :
  - Convertir automatiquement
  - Quasiment pas d'intervention manuelle après coup
  - Nouveau code obtenu compilable et exécutable
  
- ➔ En consacrant juste un minimum de temps à la conversion.

## Principes généraux de la conversion (2)

### ■ Méthodologie :

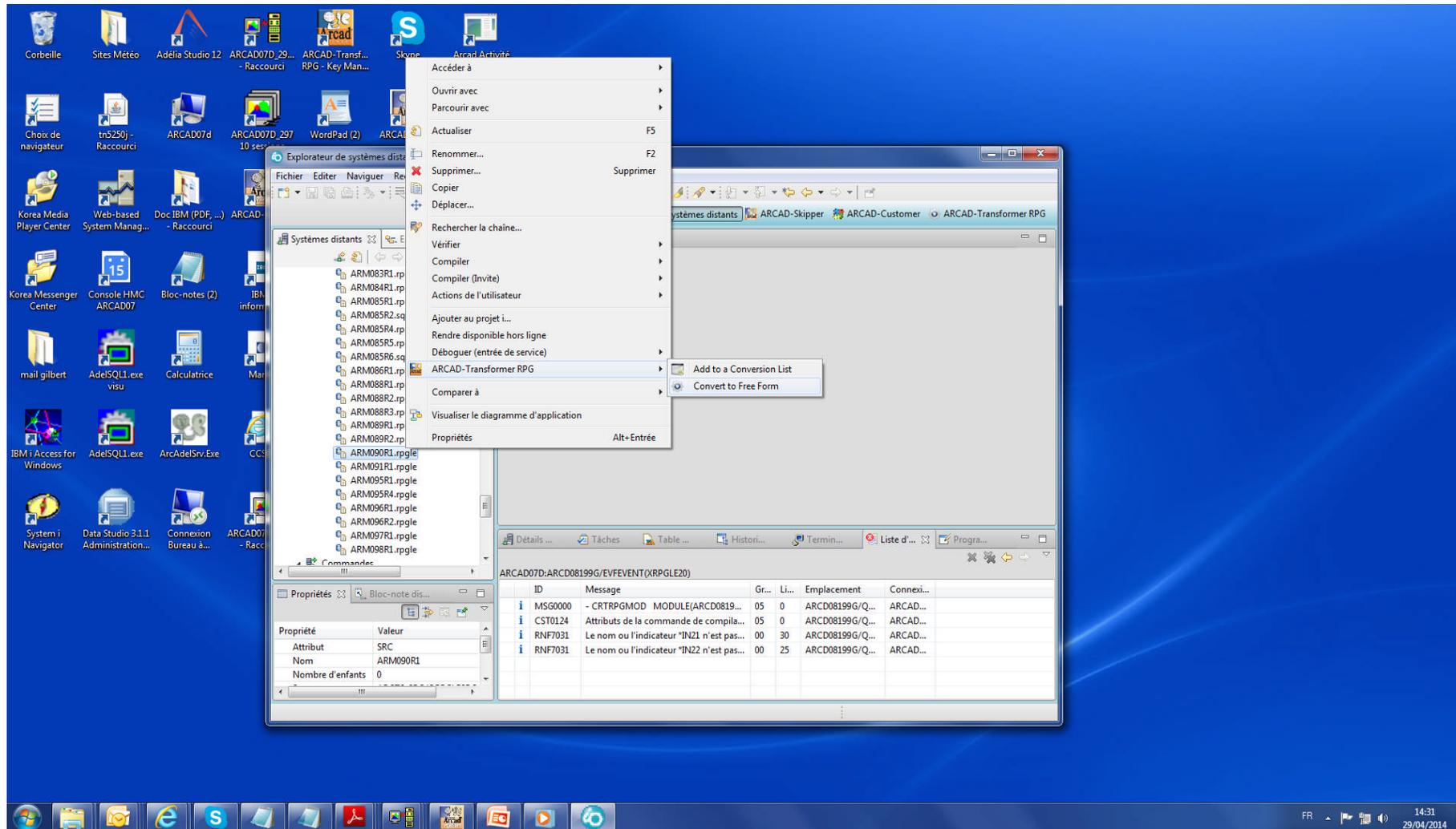
- A partir de sources complets qui compilent (\*)
  - (ajout éventuel de clause de pré-compilation)
- La conversion a besoin de connaître :
  - Le type et la longueur de toutes les zones
- D'abord calcul des Xrefs zones détaillées
- Puis conversions des spécifications et indentation
- Et obtention d'un nouveau source converti.

*(\*)Sauf pour les conversions de clause COPY  
(avec juste carte H, F ou D)*

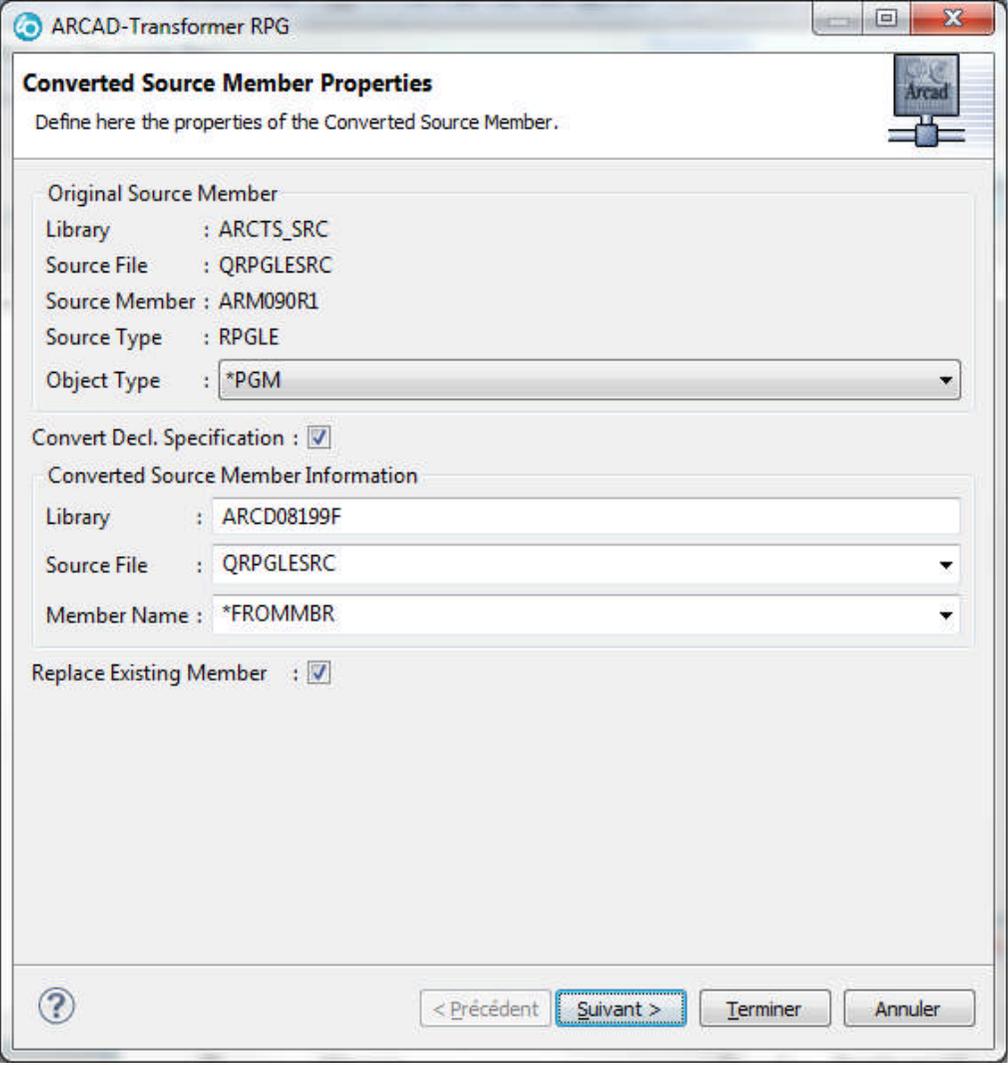
## Principes généraux de la conversion (3)

- Pour la compilation préalable (sans génération d'objet) :
  - Avoir la bonne LIBL, avec les fichiers et clauses COPY accessibles
  - Indiquer le type d'objet (\*PGM/\*MODULE)
  - Effectuer les OVRDBF,
    - Directement
    - Clauses de pré-compilation Arcad dans le source (%EXEC ou %ATTR)
      - \* %EXEC OVRDBF TMPFILE TOFILE(ARCAPPF1)

# Lancement conversion sous RDI (1)



## Lancement conversion sous RDI (2)



ARCAD-Transformer RPG

**Converted Source Member Properties**  
Define here the properties of the Converted Source Member.

Original Source Member

Library : ARCTS\_SRC  
Source File : QRPGLSRC  
Source Member : ARM090R1  
Source Type : RPGLE  
Object Type : \*PGM

Convert Decl. Specification :

Converted Source Member Information

Library : ARCD08199F  
Source File : QRPGLSRC  
Member Name : \*FROMMBR

Replace Existing Member :

? < Précédent Suivant > Terminer Annuler

## Lancement conversion sous RDI (3)

The screenshot shows the 'ARCAD-Transformer RPG' dialog box with the 'Conversion Options' tab selected. The dialog contains the following settings:

Option	Value
Convert Program calls	<input checked="" type="checkbox"/>
Convert Goto	*ADVANCED
Goto Label	ATag
Convert Key List	<input checked="" type="checkbox"/>
Convert MOVEA	*ADVANCED
Use %ParmNum	<input checked="" type="checkbox"/>
Indentation Size (char)	2
Precompilation Clauses	*ARCAD
Source Line Date	*CURRENT
Mark the conversion type	<input type="checkbox"/>
Clean Temporary Cross-reference	<input checked="" type="checkbox"/>
Clean Modified Lines	<input checked="" type="checkbox"/>

At the bottom of the dialog, there are four buttons: a help button (question mark), '< Précédent', 'Suivant >', 'Terminer', and 'Annuler'.

# Commande de conversion ACVTRPGFRE (1)

The screenshot shows a terminal window titled "G - ARCAD07D\_297.ws" with a menu bar (Fichier, Edition, Vue, Communication, Actions, Fenêtre, Aide) and a toolbar. The window displays the ACVTRPGFRE command interface. At the top, it shows connection details: Hôte: ARCAD07D, Port: 23, ID poste de travail: ZGF\_297\*, and a Déconnexion button. The main text is in French, asking the user to indicate their choices and press ENTER. The interface lists various options for conversion, such as source file, library, member, and object type, with their current values and possible options. The current values are: QRPGLSRC, ARCTS\_SRC, ARM090R1, RPGLE, \*PGM, \*FREE, \*YES, QRPGLSRC, ARCD08199F, \*FROMMBR, and \*YES. The interface also lists other parameters like converting program calls and branches. At the bottom, there are instructions for function keys: F3=Exit, F4=Invite, F5=Réafficher, F12=Annuler, F13=Mode d'emploi invite, and F24=Autres touches. The status bar at the bottom shows "MA G" and "07/037".

```

G - ARCAD07D_297.ws
Fichier Edition Vue Communication Actions Fenêtre Aide
Hôte: ARCAD07D Port: 23 ID poste de travail: ZGF_297* Déconnexion

Convertir RPGLE en synt. Free (ACVTRPGFRE)

Indiquez vos choix, puis appuyez sur ENTREE.

Fichier source . . . . . > QRPGLSRC      Nom
  bibliothèque . . . . . >   ARCTS_SRC  Nom, *LIBL, *CURLIB
Membre source . . . . . >   ARM090R1   Nom
Type de source . . . . . >   RPGLE        RPGLE, SQLRPGLE
Type d'objet . . . . . >   *PGM         *PGM, *MODULE, *NONE
Convertir spéc. de calcul . . . >   *FREE       *NO, *EXTFACT2, *FREE
Convertir spéc. de déclaration . >   *YES        *YES, *NO
Fichier source de destination . >   QRPGLSRC   Nom, *NONE, *FROMFILE
  bibliothèque . . . . . >   ARCD08199F  Nom
Membre recevant la sortie . . . >   *FROMMBR   Nom, *FROMMBR
Remplacer le membre existant . . >   *YES        *YES, *NO

Autres paramètres

Convertir appels de programmes . . *YES          *YES, *NO
Convertir les branchements . . . . *ADVANCED     *NO, *BASE, *ADVANCED

F3=Exit  F4=Invite  F5=Réafficher  F12=Annuler  F13=Mode d'emploi invite
F24=Autres touches

A suivre...

MA G 07/037
1902 - Le démarrage de la session a abouti
  
```

## Commande de conversion ACVTRPGFRE (2)

The screenshot shows a terminal window titled 'G - ARCAD07D\_297.ws'. The window has a menu bar with 'Fichier', 'Edition', 'Vue', 'Communication', 'Actions', 'Fenêtre', and 'Aide'. Below the menu bar is a toolbar with various icons. The terminal content is as follows:

```

Hôte: ARCAD07D      Port: 23      ID poste de travail: ZGF_297*      Déconnexion

Convertir RPGLE en synt. Free (ACVTRPGFRE)

Indiquez vos choix, puis appuyez sur ENTREE.

Nom de la zone pour label . . .      'ATag'      Valeur alphanum
Convertir les listes de clés . . .   *YES        *YES, *NO
Convertir l'instruction MOVEA . . .  *ADVANCED   *NO, *BASE, *ADVANCED
Utiliser %ParmNum . . . . .         *YES        *YES, *NO
Nb de caractères d'indentation      2           0-5
Clauses de précompilation . . .     *ARCAD      *ARCAD
Date de la ligne source . . . . .   *CURRENT    *CURRENT, *ZERO
Marquer le type de conversion . . .  *NO         *NO, *YES
Autoriser QTEMP en batch . . . . .  *NO         *NO, *YES
Effacer les Xref temporaires . . .   *YES        *YES, *NO
Effacer les lignes modifiées . . .   *YES        *YES, *NO

F3=Exit   F4=Invite   F5=Réafficher   F12=Annuler   F13=Mode d'emploi invite
F24=Autres touches

MA  G  05/037
1902 - Le démarrage de la session a abouti
  
```

## Cas non pris en compte (1)

### Spécifications non gérées en Free

- Spécifications I et O

### Non gérés en spécif F / D :

- Fichiers primaires (P), secondaires (S)
- Fichiers de tableau (T) ou d'adresse
- Spécif. D avec FROMFILE / TOFILE

### Codes opération non gérés :

- MHHZO , MHLZO , MLHZO , MLLZO

## Cas non pris en compte (2)

Codes opération dont quelques cas ne sont pas gérés :

- TIME : si longueur facteur résultat = 14
- SCAN, CHECK, CHECKR : si facteur résultat est un tableau
- BITON, BITOFF : si facteur 2 est une constante nommée
- POST : si facteur résultat (nom de DS) est utilisé
- MOVE, MOVEL : si facteur 2/résult. est une zone à longueur variable
- MOVEA : si variable défini en paramètre CONST
- KLIST, KFLD : si situé ou utilisé dans clause COPY
- CALL, PARM : indicateur "LR" (pos. 75-76) / CALL Pgm(idx)
- GOTO, TAG : si GOTO dans subr & TAG dans « Main »,  
si GOTO et TAG ne respectant pas la programmation structurée,  
si TAG utilisé par WHENEVER GOTO (SQL)

## Statistiques d'une conversion

- Conversion réalisée sur les RPGLE Arcad V8
  - 1800 RPGLE
  - 200 SQLRPGLE
  - + 700 clauses COPY
- 1.100.000 de lignes de codes (Spécifs H, F, D, C, P)  
(dont 250.000 lignes « commentaires »)
- 4 heures de traitements : > 99,90% de conversion :
- Uniquement 500 lignes non convertibles :
  - 350 GOTO / TAG (mais 6000 GOTO / TAG convertis)
  - 70 spécif. F (fichiers primaires)
  - 3 lignes avec TIME, 4 avec SCAN , 1 avec MOVEA, 2 avec MHHZO
  - 40 lignes CALL/PARM... (indic. mal placé)
  - 30 lignes avec POST

## Ecueils éventuels de la conversion (1)

- Indicateurs %Found et %Equal non gérés par %Scan, %Check, %LookUp

```
c      C5          Lookup    a_CStr2          45
c      If          %Found
c      SETON
c      EndIf      LR
```

Conversion, avec Avertissement (si nécessaire) :

→ vérification manuelle :

```
*IN45 = (%Lookup(C5 : a_CStr2) > 0);
// *CVTWNG : %Equal & %Found are not updated by %Lookup
If %Found;
    *INLR = '1';
EndIf;
```

## Ecueils éventuels de la conversion (2)

- Troncatures de valeurs numériques

```
C      Move(p)  1234      WVar04          définie P(4,0)
C      Z-add    WVar04    WVar03          définie P(3,0)
      (il plaçait 234 dans WVar03)
```

Résultat “234” (en tronquant)

Conversion :

```
WVar04 = 1234;
WVar03 = WVar04;
```

erreur à l'exécution :

*MCH1210 Zone réceptrice trop petite pour contenir le résultat*

Troncature parfois volontaire, mais souvent ancien bug « ignoré ».

# Conversion spéc. H – F – D – P (1)

```

Ligne 29      Colonne 46      Insérer
.....DName+++++ETDsFrom+++To/L+++IDc.Keywords+++++Comments+++++
001800      H DEEDIT('0,') DATEDIT(*DMY.)
001900      FAROBJTYP  IF  E          K DISK
002000      FARDNOML1  UF  E          K DISK
002100      FARM120D1  CF  E          WORKSTN  INFDS(D1DS)
002200      D*
002300      D Xre_DmpPgm      Pr
002400      d DumpAct          1A      Value Options(*NoPass)
002500      D*
002600      D SRC_Enr          E DS          EXTNAME(ARDSRCF1) Based(SRC_PtrEnr)
002700      D D1DS            DS
002800      D Z1LINE          370      370
002900      D Z$RCD          378      379
003000      D KEY            369      369
003100      D*
003200      D P_Out            DS          32000
003300      D P_Out_Nbcharacters...
003400      D                    5S 0
003500      D P_Out_Nb...
003600      D Elements        5S 0
003700      D P_Out_ErrC      10A
003800      D* Lower case
003900      D MI              C          CONST('abcdefghijklmnopqrst-
004000      D                    uvwxyz')
004100      C*
004200      C                    Seton                                     Lr
004300      P*-----*
004400      P Xre_DmpPgm      B
004500      D Xre_DmpPgm      Pi
004600      d DumpAct          1A      Value Options(*NoPass)
004700      C                    DUMP
    
```

# Conversion spéc. H – F – D – P (2)

```

Explorateur de systèmes distants - RemoteSystemsTempFiles\ARCAD07D\QSYS.LIB\ARCDO8199F.LIB\QRPGLSRC.FILE\XRPGL00.RPGLE - IBM Rational Developer for i
Fichier  Éditer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
Accès rapide  Explorateur de systèmes distants  ARCAD-Skipper  ARCAD-Customer

XRPGL00.RPGLE  XRPGL00.RPGLE
Ligne 21  Colonne 1  Replacer
..... Free-Form+++++
001900      Dcl-F AROBJTYP   Keyed;
002000      Dcl-F ARDNOML1  Usage(*Update:*Delete) Keyed;
002100      Dcl-F ARM120D1  WORKSTN  INFDS(D1DS);
002200      //
002300      Dcl-Pr Xre_DmpPgm;
002400          DumpAct      Char(1)          Value Options(*NoPass);
002401      End-Pr;
002500      //
002600      Dcl-Ds SRC_Enr  ExtName('ARDSRCF1') Based(SRC_PtrEnr) End-Ds;
002700      Dcl-Ds D1DS;
002800          Z1LINE      Char(1)          Pos(370);
002900          Z$RCD       Char(2)          Pos(378);
003000          KEY         Char(1)          Pos(369);
003001      End-Ds;
003100      //
003200      Dcl-Ds P_Out Len(32000);
003400          P_Out_Nbcharacters Zoned(5:0);
003600          P_Out_NbElements Zoned(5:0);
003700          P_Out_ErrC     Char(10);
003701      End-Ds;
003800      // Lower case
003900      Dcl-C MI          CONST('abcdefghijklmnopqrst-
004000      uvwxyz');
004100      //
004200      *INLR = '1';
004300      // =====*
004400      Dcl-Proc Xre_DmpPgm;
004500          Dcl-Pi Xre_DmpPgm;
004600              DumpAct      Char(1)          Value Options(*NoPass);
004601          End-Pi;
004700          Dump;
004800          Return;
004900      End-Proc Xre_DmpPgm;
  
```

# Codes opér. Z-ADD, Z-SUB, ADD, SUB (1)

The screenshot shows a window titled "Explorateur de systèmes distants" with a menu bar (Fichier, Editer, Source, Compiler(G), Naviguer, Recherche, Projet, Exécuter, Fenêtre, Aide) and a toolbar. The main area displays a COBOL program with the following code:

```

Ligne 21      Colonne 68      Replacer
DName+++++++ETDsFrom+++To/L+++IDc.Keywords+++++++C
+ 17 lignes retirées. -----
001800 D F1dA_5P0          s                5p 0
001900 D F1dB_6P0          s                6p 0
002000 D F1dC_7P2          s                7p 2
002100 D F1dD_7P2          s                7p 2
002200 D F1dE_7P2          s                7p 2
002300 D F1dF_7P2          s                7p 2
002400 D*
002500 C*-- Z-ADD,  ADD,  SUB
002600 C          Z-ADD    45          F1dA_5P0
002700 C          F1dA_5P0  ADD      F1dB_6P0  F1dC_7P2
002800 C          ADD      F1dC_7P2  F1dD_7P2
002900 C          F1dD_7P2  SUB      F1dE_7P2  F1dF_7P2          414142
003000 C*
003100 C          Seton                                Lr
    
```

The status bar at the bottom of the window shows "Replacer" and "21 : 68".

# Codes opér. Z-ADD, Z-SUB, ADD, SUB (2)

```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCAD08199F.LIB/QRPGLESRC.FILE/XRPGL01.RPGL01 - I...
Fichier Editer Source Compiler(G) Naviguer Recherche Projet Exécuter Fenêtre Aide
Accès rapide Explorateur de systèmes distants ARCAD-Skipper ARCAD-Customer
XRPGL01.RPGL01
Ligne 25 Colonne 51 Replacer
.....1.....2.....3.....4.....5.....6.....7.....+
----- 17 lignes retirées. -----
001800 Dc1-S F1dA_5P0 Packed(5:0);
001900 Dc1-S F1dB_6P0 Packed(6:0);
002000 Dc1-S F1dC_7P2 Packed(7:2);
002100 Dc1-S F1dD_7P2 Packed(7:2);
002200 Dc1-S F1dE_7P2 Packed(7:2);
002300 Dc1-S F1dF_7P2 Packed(7:2);
002400 //
002500 // -- Z-ADD, ADD, SUB
002600 F1dA_5P0 = 45;
002700 F1dC_7P2 = F1dA_5P0 + F1dB_6P0;
002800 F1dD_7P2 += F1dC_7P2;
002900 F1dF_7P2 = F1dD_7P2 - F1dE_7P2;
002901 *IN41 = (F1dF_7P2 <> 0);
002902 *IN42 = (F1dF_7P2 = 0);
003000 //
003100 *INLR = '1';
Replacer 25 : 51
```

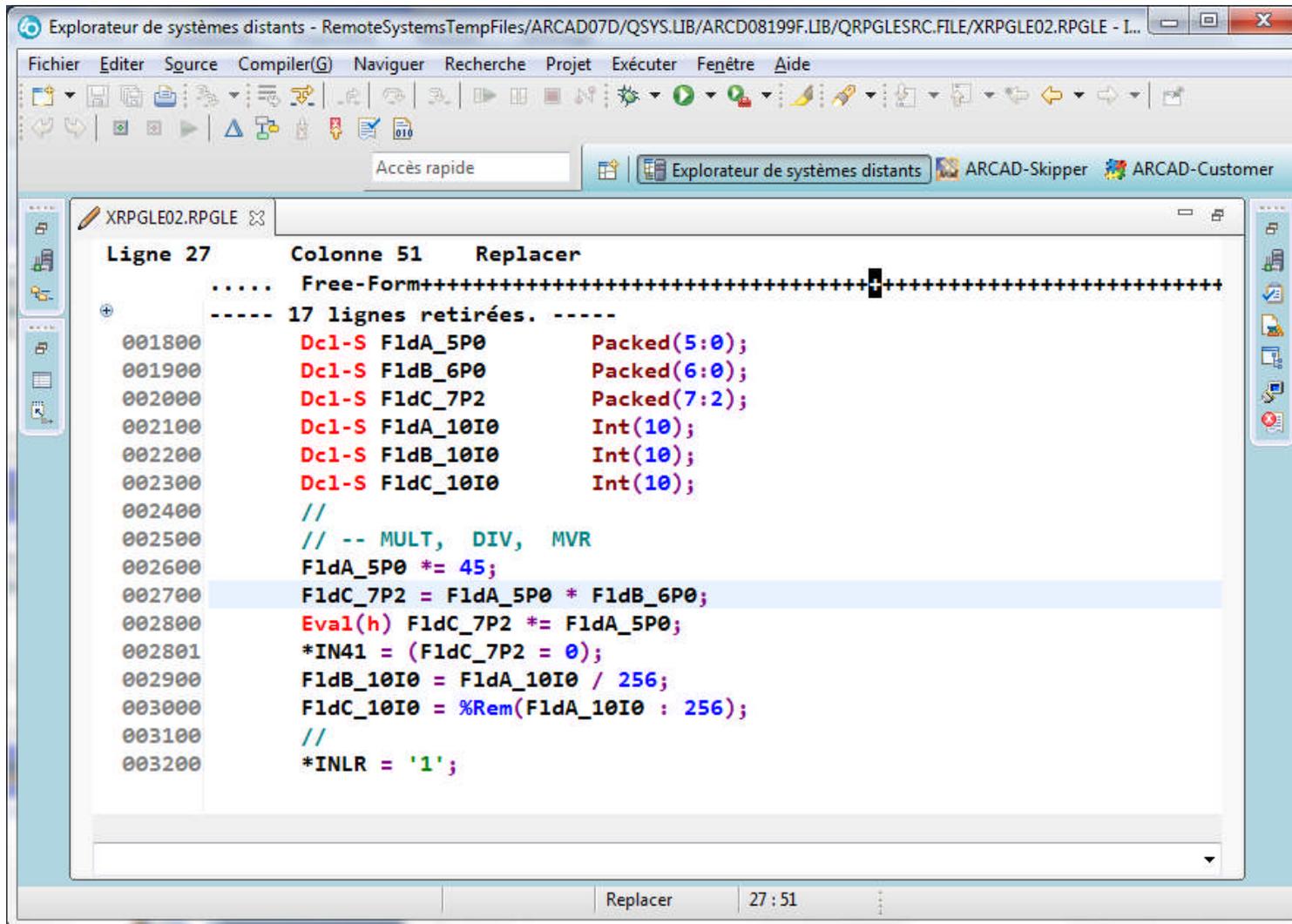
# Codes opér. MULT, DIV, MVR (1)

```

Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199G.LIB/QRPGLESRC.FILE/XRPGL02.RPGL - I...
Fichier  Editer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
Accès rapide  Explorateur de systèmes distants  ARCAD-Skipper  ARCAD-Customer

XRPGL02.RPGL
Ligne 25      Colonne 27      Insérer
.....1.....2.....3.....4.....5.....6.....7.....+
----- 17 lignes retirées. -----
001800      D  F1dA_5P0          S          5p 0
001900      D  F1dB_6P0          S          6p 0
002000      D  F1dC_7P2          S          7p 2
002100      D  F1dA_10I0         S         10i 0
002200      D  F1dB_10I0         S         10i 0
002300      D  F1dC_10I0         S         10i 0
002400      D*
002500      C*-- MULT, DIV, MVR
002600      C                   MULT      45      F1dA_5P0
002700      C      F1dA_5P0      MULT      F1dB_6P0  F1dC_7P2
002800      C                   MULT(h)   F1dA_5P0  F1dC_7P2      41
002900      C      F1dA_10I0    Div      256      F1dB_10I0
003000      C                   Mvr        F1dC_10I0
003100      C*
003200      C                   Seton
Lr
    
```

## Codes opér. MULT, DIV, MVR (2)



The screenshot shows a remote system explorer window titled "Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLESRC.FILE/XRPGLE02.RPGLE - I...". The window contains a COBOL program named "XRPGLE02.RPGLE". The code is displayed in a text editor with a menu bar (Fichier, Editer, Source, Compiler(G), Naviguer, Recherche, Projet, Exécuter, Fenêtre, Aide) and a toolbar. The code includes several data declarations and arithmetic operations. A comment line indicates that 17 lines were removed. The current line (27) is highlighted in blue.

```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLESRC.FILE/XRPGLE02.RPGLE - I...
Fichier Editer Source Compiler(G) Naviguer Recherche Projet Exécuter Fenêtre Aide
Accès rapide Explorateur de systèmes distants ARCAD-Skipper ARCAD-Customer
XRPGLE02.RPGLE
Ligne 27 Colonne 51 Replacer
..... Free-Form+++++++
----- 17 lignes retirées. -----
001800      Dc1-S F1dA_5P0      Packed(5:0);
001900      Dc1-S F1dB_6P0      Packed(6:0);
002000      Dc1-S F1dC_7P2      Packed(7:2);
002100      Dc1-S F1dA_10I0     Int(10);
002200      Dc1-S F1dB_10I0     Int(10);
002300      Dc1-S F1dC_10I0     Int(10);
002400      //
002500      // -- MULT, DIV, MVR
002600      F1dA_5P0 *= 45;
002700      F1dC_7P2 = F1dA_5P0 * F1dB_6P0;
002800      Eval(h) F1dC_7P2 *= F1dA_5P0;
002801      *IN41 = (F1dC_7P2 = 0);
002900      F1dB_10I0 = F1dA_10I0 / 256;
003000      F1dC_10I0 = %Rem(F1dA_10I0 : 256);
003100      //
003200      *INLR = '1';
Replacer 27 : 51
```

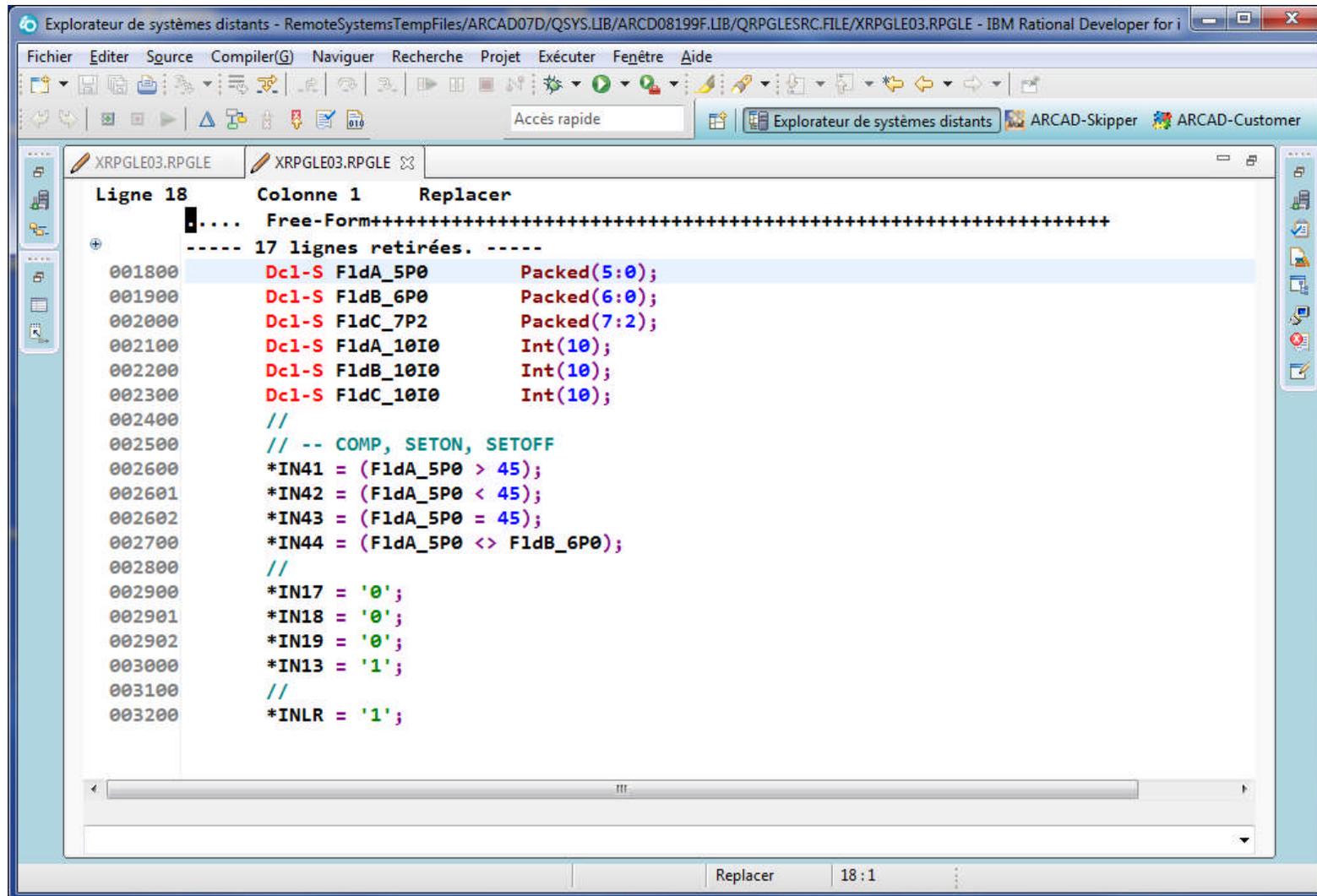
# Codes opér. COMP, SETON, SETOFF (1)

The screenshot shows the IBM Rational Developer for i interface. The main window displays the source code for file XRPGL03.RPGLE. The code includes several data declarations (D) and control statements (C). A comment on line 30 indicates that 17 lines have been removed. The control statements include COMP, SETON, and SETOFF operations.

```

Ligne 30      Colonne 46      Replacer
.....CL0N01Factor1+++++Opcode(E)+Factor2+++Result+++++Len++D+HiLoEq....Comments++++
----- 17 lignes retirées. -----
001800      D F1dA_5P0          S          5p 0
001900      D F1dB_6P0          S          6p 0
002000      D F1dC_7P2          S          7p 2
002100      D F1dA_10I0         S          10i 0
002200      D F1dB_10I0         S          10i 0
002300      D F1dC_10I0         S          10i 0
002400      D*
002500      C*-- COMP, SETON, SETOFF
002600      C   F1dA_5P0      COMP      45          414243
002700      C   F1dA_5P0      COMP      F1dB_6P0    4444
002800      C*
002900      C                   Setoff      171819
003000      C                   Seton
003100      C*
003200      C                   Seton          Lr
    
```

# Codes opér. COMP, SETON, SETOFF (2)



The screenshot shows the IBM Rational Developer for i interface. The main window displays a COBOL program with the following code:

```
Ligne 18      Colonne 1      Replacer
..... Free-Form+++++
----- 17 lignes retirées. -----
001800      Dcl-S F1dA_5P0      Packed(5:0);
001900      Dcl-S F1dB_6P0      Packed(6:0);
002000      Dcl-S F1dC_7P2      Packed(7:2);
002100      Dcl-S F1dA_10I0     Int(10);
002200      Dcl-S F1dB_10I0     Int(10);
002300      Dcl-S F1dC_10I0     Int(10);
002400      //
002500      // -- COMP, SETON, SETOFF
002600      *IN41 = (F1dA_5P0 > 45);
002601      *IN42 = (F1dA_5P0 < 45);
002602      *IN43 = (F1dA_5P0 = 45);
002700      *IN44 = (F1dA_5P0 <> F1dB_6P0);
002800      //
002900      *IN17 = '0';
002901      *IN18 = '0';
002902      *IN19 = '0';
003000      *IN13 = '1';
003100      //
003200      *INLR = '1';
```

The status bar at the bottom of the window shows "Replacer" and "18 : 1".

# Codes opér. BITON, BITOFF, TESTB (1)

The screenshot shows a window titled 'Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199G.LIB/QRPGLESRC.FILE/XRPGLE04.RPGLE - IBM Rational Developer for i'. The main editor displays a COBOL program with the following code:

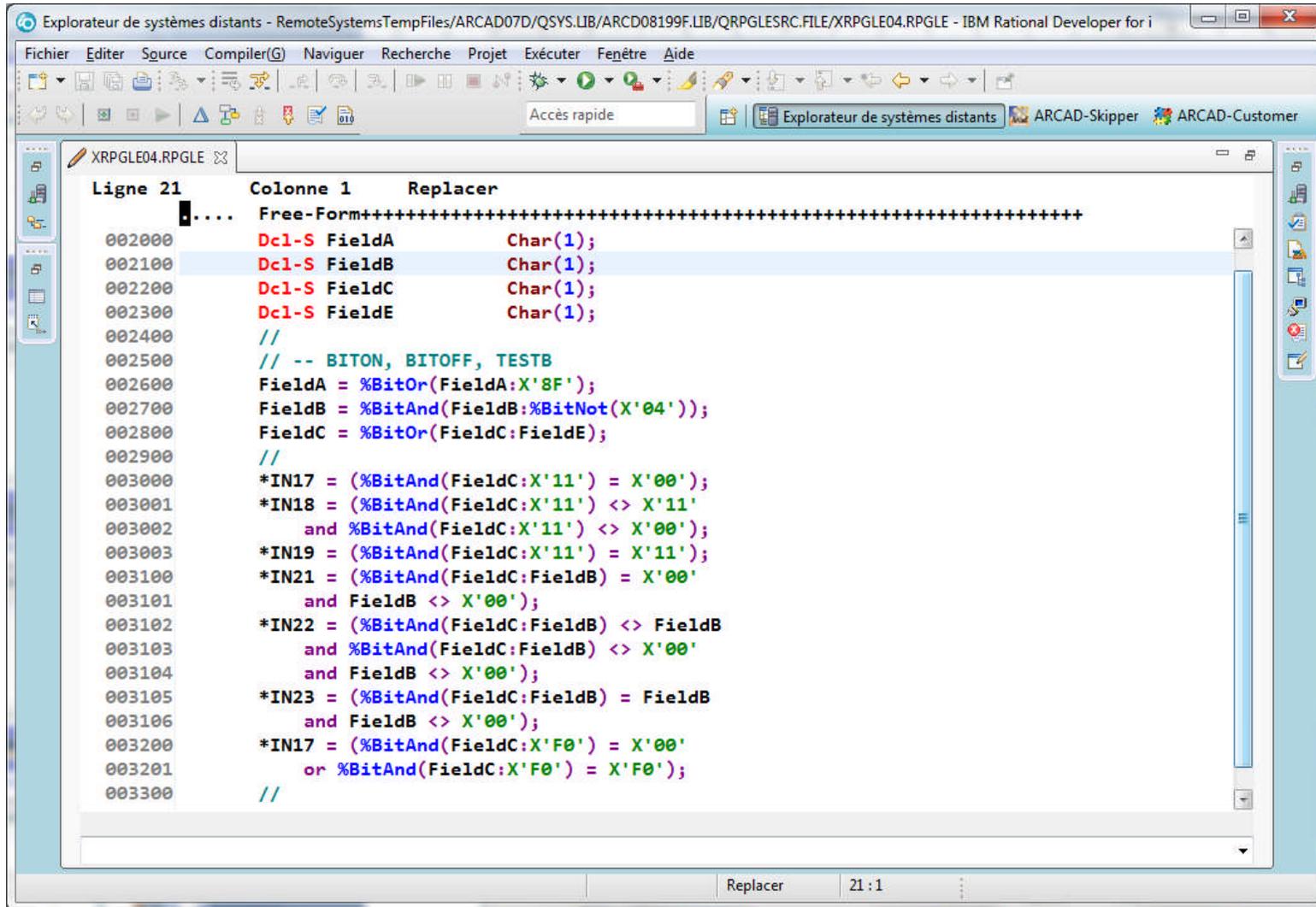
```

Ligne 19      Colonne 1      Replacer
.....1.....2.....3.....4.....5.....6.....7.....8.....9.....+
----- 18 lignes retirées. -----
001900      D*
002000      D FieldA          S          1A
002100      D FieldB          S          1A
002200      D FieldC          S          1A
002300      D FieldE          S          1A
002400      *
002500      C*-- BITON, BITOFF, TESTB
002600      C              Biton    '04567'    FieldA
002700      C              Bitoff   '5'        FieldB
002800      C              Biton    FieldE     FieldC
002900      C*
003000      C              TestB    '37'        FieldC          171819
003100      C              TestB    FieldB     FieldC          212223
003200      C              TestB    X'F0'     FieldC          17 17
003300      C*
003400      C              Seton

```

The status bar at the bottom of the window shows 'Replacer' and '19:1'.

## Codes opér. BITON, BITOFF, TESTB (2)



The screenshot shows the IBM Rational Developer for i interface. The main window displays a COBOL program named XRPGL04.RPGLE. The code is as follows:

```
Ligne 21      Colonne 1      Replacer
..... Free-Form+++++
002000      Dcl-S FieldA      Char(1);
002100      Dcl-S FieldB      Char(1);
002200      Dcl-S FieldC      Char(1);
002300      Dcl-S FieldE      Char(1);
002400      //
002500      // -- BITON, BITOFF, TESTB
002600      FieldA = %BitOr(FieldA:X'8F');
002700      FieldB = %BitAnd(FieldB:%BitNot(X'04'));
002800      FieldC = %BitOr(FieldC:FieldE);
002900      //
003000      *IN17 = (%BitAnd(FieldC:X'11') = X'00');
003001      *IN18 = (%BitAnd(FieldC:X'11') <> X'11'
003002              and %BitAnd(FieldC:X'11') <> X'00');
003003      *IN19 = (%BitAnd(FieldC:X'11') = X'11');
003100      *IN21 = (%BitAnd(FieldC:FieldB) = X'00'
003101              and FieldB <> X'00');
003102      *IN22 = (%BitAnd(FieldC:FieldB) <> FieldB
003103              and %BitAnd(FieldC:FieldB) <> X'00'
003104              and FieldB <> X'00');
003105      *IN23 = (%BitAnd(FieldC:FieldB) = FieldB
003106              and FieldB <> X'00');
003200      *IN17 = (%BitAnd(FieldC:X'F0') = X'00'
003201              or %BitAnd(FieldC:X'F0') = X'F0');
003300      //
```

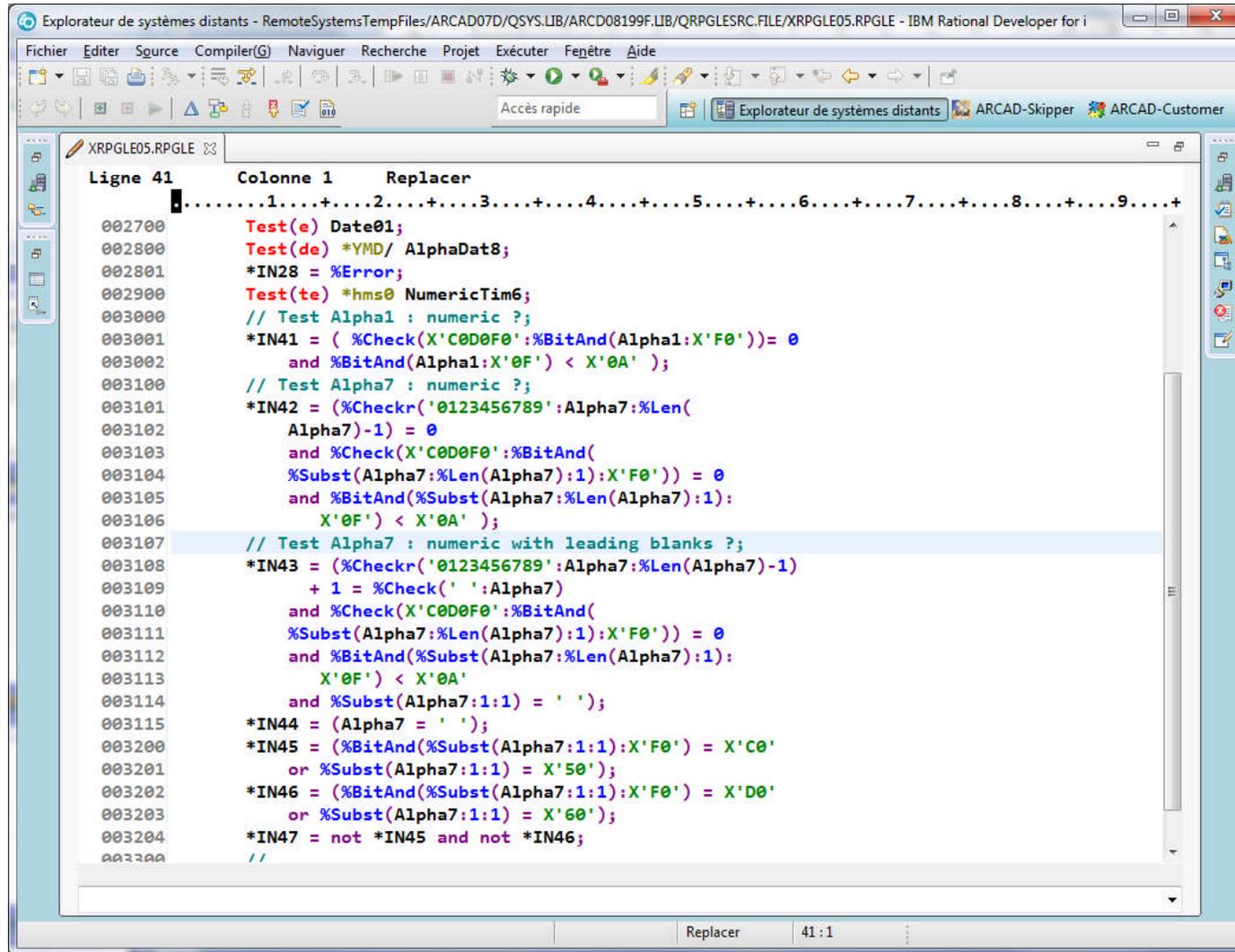
# Codes opér. TEST, TESTN, TESTZ (1)

The screenshot shows the IBM Rational Developer for i interface. The main window displays the source code of an RPGLE program (XRPGL05.RPGLE). The code includes several data declarations (D) and a series of operations (C) for testing. The operations TEST, TESTN, and TESTZ are highlighted in blue. The TESTZ operation is shown with the value 454647. The Seton operation is shown with the value Lr.

```

Ligne 32      Colonne 81      Replacer
.....CL0N01Factor1+++++Opcode(E)+Factor2+++++Result+++++Len++D+HiLoEq....Comments+++++
----- 18 lignes retirées. -----
001900      D*
002000      D Date01          S          d
002100      D AlphaDat8      S          8a
002200      D NumericTim6  S          6a
002300      D Alpha1        S          1a
002400      D Alpha7        S          7a
002500      *
002600      C*-- TEST, TESTN, TESTZ
002700      C              Test(e)      Date01
002800      C      *YMD/      Test(d)      AlphaDat8          28
002900      C      *hms0     Test(te)     NumericTim6
003000      C              TestN      Alpha1          41
003100      C              TestN      Alpha7          424344
003200      C              TestZ      Alpha7          454647
003300      C
003400      C              Seton          Lr
    
```

# Codes opér. TEST, TESTN, TESTZ (2)



The screenshot shows the IBM Rational Developer for i interface. The main window displays a COBOL program named XRPGL05.RPGL05. The code is as follows:

```
Ligne 41      Colonne 1      Replacer
.....1.....2.....3.....4.....5.....6.....7.....8.....9.....+
002700      Test(e) Date01;
002800      Test(de) *YMD/ AlphaDat8;
002801      *IN28 = %Error;
002900      Test(te) *hms0 NumericTim6;
003000      // Test Alpha1 : numeric ?;
003001      *IN41 = ( %Check(X'C0D0F0':%BitAnd(Alpha1:X'F0'))= 0
003002              and %BitAnd(Alpha1:X'0F') < X'0A' );
003100      // Test Alpha7 : numeric ?;
003101      *IN42 = (%Checkr('0123456789':Alpha7:%Len(
003102              Alpha7)-1) = 0
003103              and %Check(X'C0D0F0':%BitAnd(
003104              %Subst(Alpha7:%Len(Alpha7):1):X'F0')) = 0
003105              and %BitAnd(%Subst(Alpha7:%Len(Alpha7):1):
003106              X'0F') < X'0A' );
003107      // Test Alpha7 : numeric with leading blanks ?;
003108      *IN43 = (%Checkr('0123456789':Alpha7:%Len(Alpha7)-1)
003109              + 1 = %Check(' ':Alpha7)
003110              and %Check(X'C0D0F0':%BitAnd(
003111              %Subst(Alpha7:%Len(Alpha7):1):X'F0')) = 0
003112              and %BitAnd(%Subst(Alpha7:%Len(Alpha7):1):
003113              X'0F') < X'0A'
003114              and %Subst(Alpha7:1:1) = ' ');
003115      *IN44 = (Alpha7 = ' ');
003200      *IN45 = (%BitAnd(%Subst(Alpha7:1:1):X'F0') = X'C0'
003201              or %Subst(Alpha7:1:1) = X'50');
003202      *IN46 = (%BitAnd(%Subst(Alpha7:1:1):X'F0') = X'D0'
003203              or %Subst(Alpha7:1:1) = X'60');
003204      *IN47 = not *IN45 and not *IN46;
003300      //
```

# Codes opér. MOVE, MOVEL (1)

```

Explorateur de systèmes distants - RemoteSystemsTempFiles\ARCAD07D\QSYS.LIB\ARCAD08199G.LIB\QRPGLSRC.FILE\XRPGL06.RPGLE - IBM Rational Developer for i
Fichier  Editer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
Accès rapide  Explorateur de systèmes distants  ARCAD-Skipper  ARCAD-Customer

XRPGL06.RPGLE
Ligne 32  Colonne 61  Insérer
.....DName+++++ETDsFrom+++To/L+++IDc. Keywords+++++Comments+++++
002500  D Indic01      s          n
002600  D Num5P0      s          5p 0
002700  D Num5P2      s          5p 2
002800  D Num9S3      s          9s 3
002900  D Num6S0      s          6s 0
003000  D Date01      s          d
003100  D Time01      s          t
003200  D TimeStamp01 s          z
003300  D*
003400  C*-- MOVE, MOVEL  Alpha - Alpha
003500  C              MOVE  'AB'      Alpha2
003600  C              MOVE  'CD'      Alpha7
003700  C              MOVE  'CD'      Alpha8
003800  C              MOVE  *Blanks   Alpha9
003900  C              MOVE  *Lova1    Alpha9
004000  C              MOVE  Alpha7    Alpha9
004100  C              MOVE(P) Alpha7  Alpha9
004200  C              MOVE  Alpha7    Alpha9
004300  C              MOVE  *ALL'0'   Alpha9
004400  C              MOVE  *ALL'9'   Alpha9
004500  C*
004600  C*  MOVE, MOVEL  indicator
004700  C              MOVE  '1'      *IN17
004800  C              MOVE  *Off     Indic01
004900  C              MOVE  Alpha2    *IN19
005000  C*

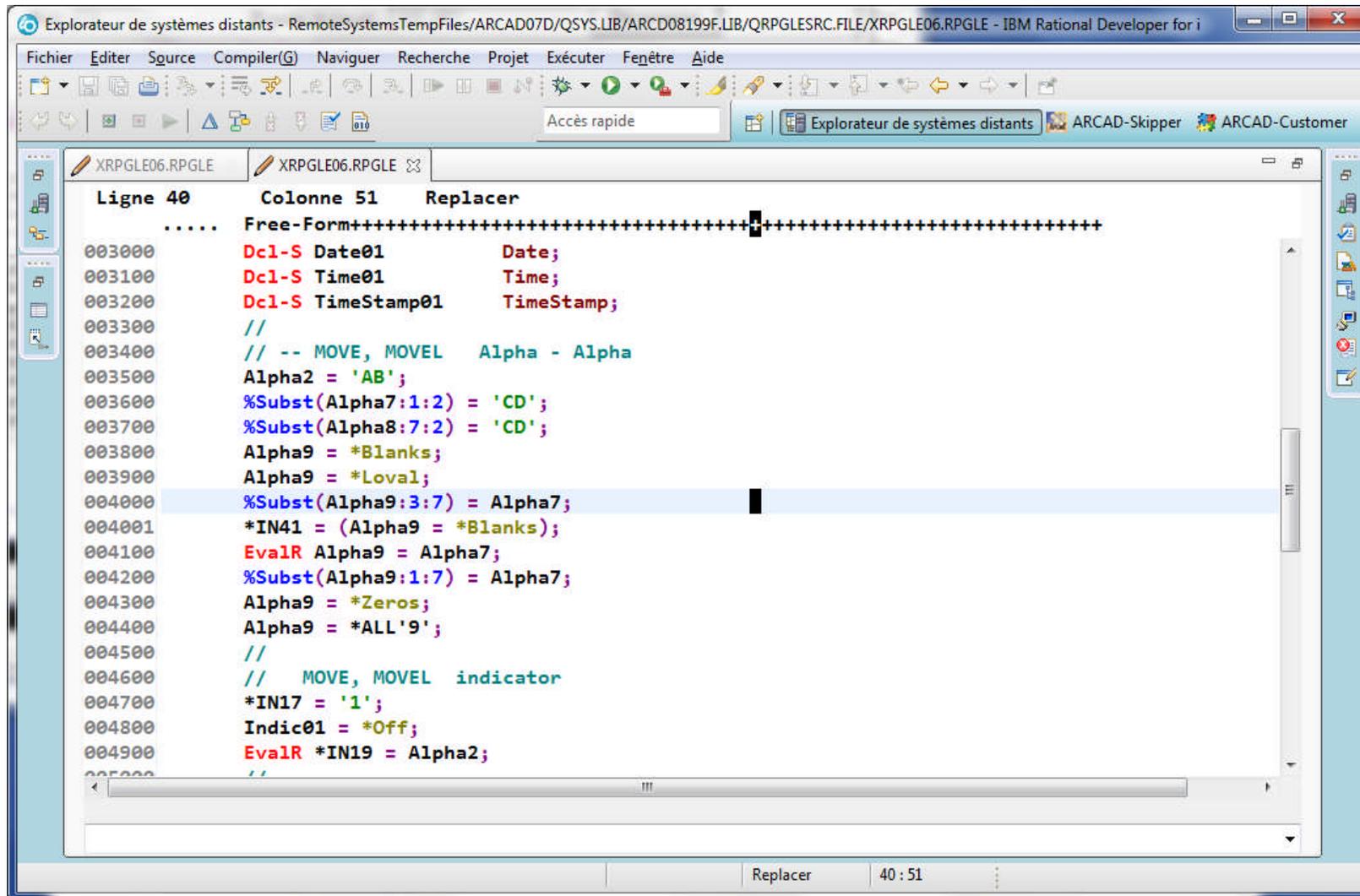
```

# Codes opér. MOVE, MOVEL (2)

The screenshot shows the IBM Rational Developer for i interface with the source file editor open to XRPGLE06.RPGLE. The editor displays a table of code examples for MOVE and MOVEL operations, organized by line number (Ligne 51) and column (Colonne 1). The 'Insérer' column shows the code to be inserted, and the right side shows the resulting data fields.

Ligne 51	Colonne 1	Insérer
005100	C*	MOVE, MOVEL date/time/timeStamp
005200	C	MOVEL TimeStamp01 Date01
005300	C	*YMD/ MOVEL Date01 Alpha8
005400	C	*YMD/ MOVE Date01 Alpha12
005500	C	*YMD0 MOVEL Alpha6 Date01
005600	C	*HMS MOVEL Num6S0 Time01
005700	C*	
005800	C*	MOVE, MOVEL Num - Num
005900	C	MOVE(p) 315 Num5P0
006000	C	MOVE 315 Num5P0
006100	C	MOVEL Num5P0 Num9S3
006200	C	MOVE Num5P0 Num5P2
006300	C*	
006400	C*	MOVE, MOVEL Num -> Alpha
006500	C	MOVE Num5P0 Alpha5
006600	C	MOVEL Num5P0 Alpha2
006700	C	MOVE ( p) Num5P0 Alpha8
006800	C	MOVE Num5P2 Alpha8
006900	C*	
007000	C*	MOVE, MOVEL Alpha -> Num
007100	C	MOVEL Alpha5 Num5P0
007200	C	MOVE (p) Alpha2 Num5P2
007300	C	MOVE Alpha2 Num5P2
007400	C	MOVE Alpha8 Num5P2
007500	C*	

# Codes opér. MOVE, MOVEL (3)

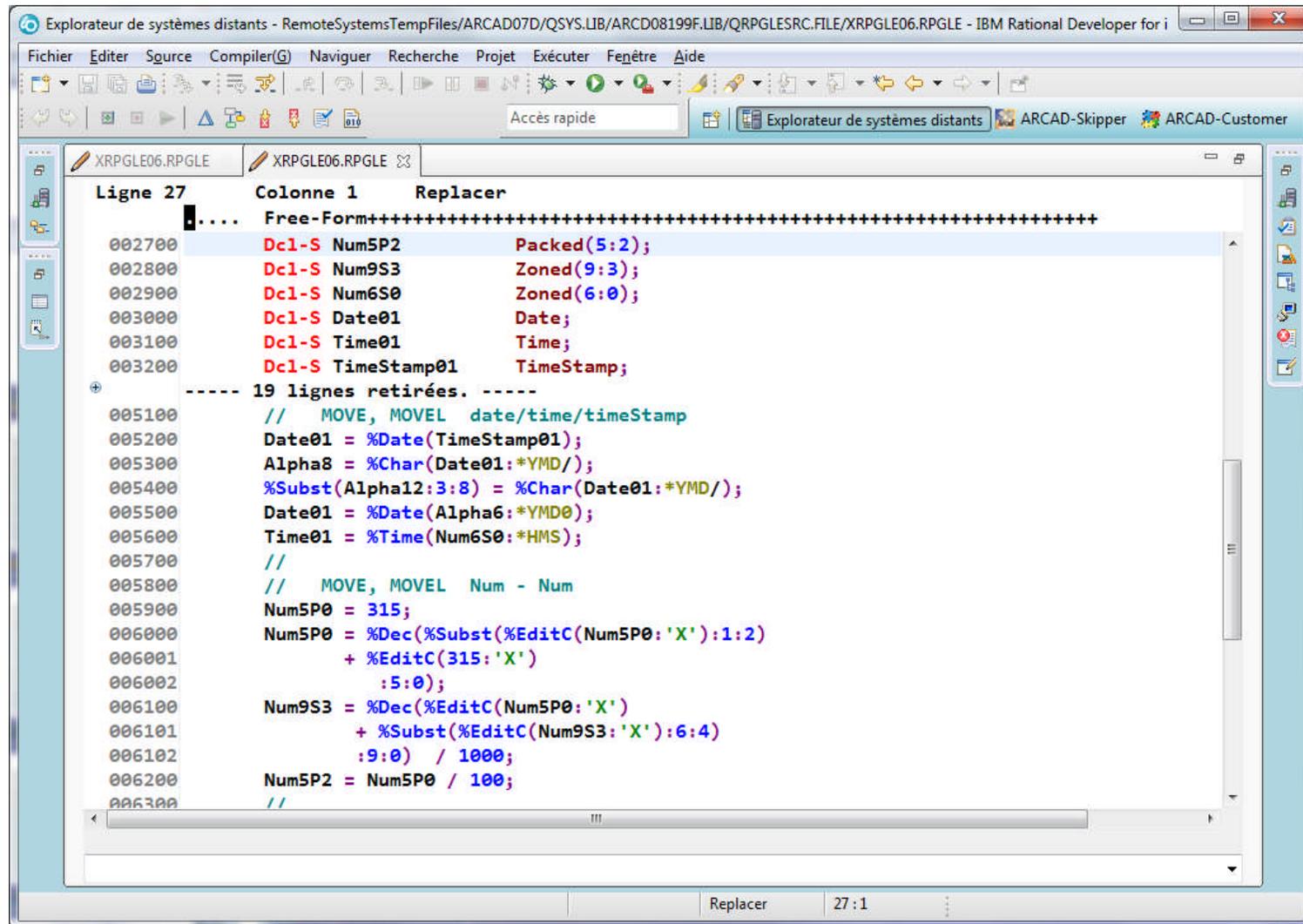


The screenshot displays the IBM Rational Developer for i interface. The main window shows a COBOL program named XRPGL06.RPGLE. The editor is in 'Replacer' mode, showing line 40 at column 51. The code includes several declarations and assignments, with a comment indicating the use of MOVE and MOVEL operators for Alpha data.

```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLESRC.FILE/XRPGL06.RPGLE - IBM Rational Developer for i
Fichier Éditer Source Compiler(G) Naviguer Recherche Projet Exécuter Fenêtre Aide
Accès rapide Explorateur de systèmes distants ARCAD-Skipper ARCAD-Customer

XRPGL06.RPGLE XRPGL06.RPGLE
Ligne 40 Colonne 51 Replacer
..... Free-Form+++++
003000 Dcl-S Date01      Date;
003100 Dcl-S Time01     Time;
003200 Dcl-S TimeStamp01  TimeStamp;
003300 //
003400 // -- MOVE, MOVEL  Alpha - Alpha
003500 Alpha2 = 'AB';
003600 %Subst(Alpha7:1:2) = 'CD';
003700 %Subst(Alpha8:7:2) = 'CD';
003800 Alpha9 = *Blanks;
003900 Alpha9 = *Loval;
004000 %Subst(Alpha9:3:7) = Alpha7;
004001 *IN41 = (Alpha9 = *Blanks);
004100 EvalR Alpha9 = Alpha7;
004200 %Subst(Alpha9:1:7) = Alpha7;
004300 Alpha9 = *Zeros;
004400 Alpha9 = *ALL'9';
004500 //
004600 // MOVE, MOVEL  indicator
004700 *IN17 = '1';
004800 Indic01 = *Off;
004900 EvalR *IN19 = Alpha2;
005000 //
```

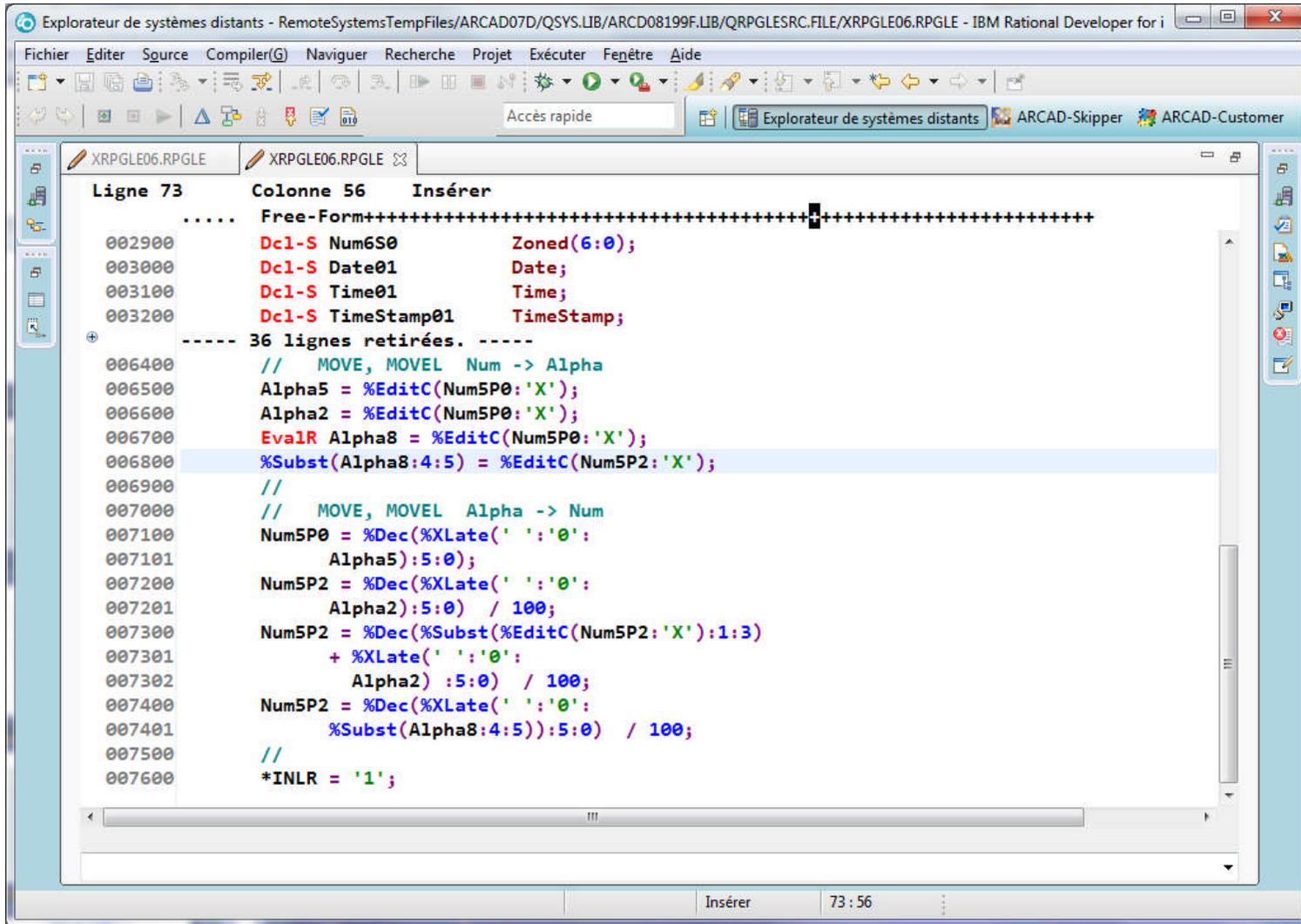
# Codes opér. MOVE, MOVEL (4)



The screenshot shows the IBM Rational Developer for i interface. The main window displays the source code for XRPGL06.RPGLE. The code includes declarations for variables and several MOVE and MOVEL operations. A comment indicates that 19 lines have been removed.

```
Explorateur de systèmes distants - RemoteSystemsTempFiles\ARCAD07D\QSYS.LIB\ARCAD08199F.LIB\QRPGLSRC.FILE\XRPGL06.RPGLE - IBM Rational Developer for i
Fichier Editer Source Compiler(N) Naviguer Recherche Projet Exécuter Fenêtre Aide
XRPGL06.RPGLE XRPGL06.RPGLE
Ligne 27 Colonne 1 Replacer
..... Free-Form+++++
002700 Dcl-S Num5P2 Packed(5:2);
002800 Dcl-S Num9S3 Zoned(9:3);
002900 Dcl-S Num6S0 Zoned(6:0);
003000 Dcl-S Date01 Date;
003100 Dcl-S Time01 Time;
003200 Dcl-S TimeStamp01 TimeStamp;
+----- 19 lignes retirées. -----
005100 // MOVE, MOVEL date/time/timeStamp
005200 Date01 = %Date(TimeStamp01);
005300 Alpha8 = %Char(Date01:*YMD/);
005400 %Subst(Alpha12:3:8) = %Char(Date01:*YMD/);
005500 Date01 = %Date(Alpha6:*YMD0);
005600 Time01 = %Time(Num6S0:*HMS);
005700 //
005800 // MOVE, MOVEL Num - Num
005900 Num5P0 = 315;
006000 Num5P0 = %Dec(%Subst(%EditC(Num5P0:'X'):1:2)
006001 + %EditC(315:'X')
006002 :5:0);
006100 Num9S3 = %Dec(%EditC(Num5P0:'X')
006101 + %Subst(%EditC(Num9S3:'X'):6:4)
006102 :9:0) / 1000;
006200 Num5P2 = Num5P0 / 100;
006300 //
```

# Codes opér. MOVE, MOVEL (5)



The screenshot displays the IBM Rational Developer for i interface, showing a window titled "Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLESRC.FILE/XRPGLE06.RPGLE". The main editor area shows the following code:

```
Ligne 73      Colonne 56      Insérer
..... Free-Form+++++
002900      Dcl-S Num6S0          Zoned(6:0);
003000      Dcl-S Date01          Date;
003100      Dcl-S Time01          Time;
003200      Dcl-S TimeStamp01    TimeStamp;
+----- 36 lignes retirées. -----
006400      // MOVE, MOVEL Num -> Alpha
006500      Alpha5 = %EditC(Num5P0:'X');
006600      Alpha2 = %EditC(Num5P0:'X');
006700      EvalR Alpha8 = %EditC(Num5P0:'X');
006800      %Subst(Alpha8:4:5) = %EditC(Num5P2:'X');
006900      //
007000      // MOVE, MOVEL Alpha -> Num
007100      Num5P0 = %Dec(%XLate(' ': '0':
007101          Alpha5):5:0);
007200      Num5P2 = %Dec(%XLate(' ': '0':
007201          Alpha2):5:0) / 100;
007300      Num5P2 = %Dec(%Subst(%EditC(Num5P2:'X'):1:3)
007301          + %XLate(' ': '0':
007302          Alpha2):5:0) / 100;
007400      Num5P2 = %Dec(%XLate(' ': '0':
007401          %Subst(Alpha8:4:5)):5:0) / 100;
007500      //
007600      *INLR = '1';
```

The status bar at the bottom indicates "Insérer" and "73 : 56".

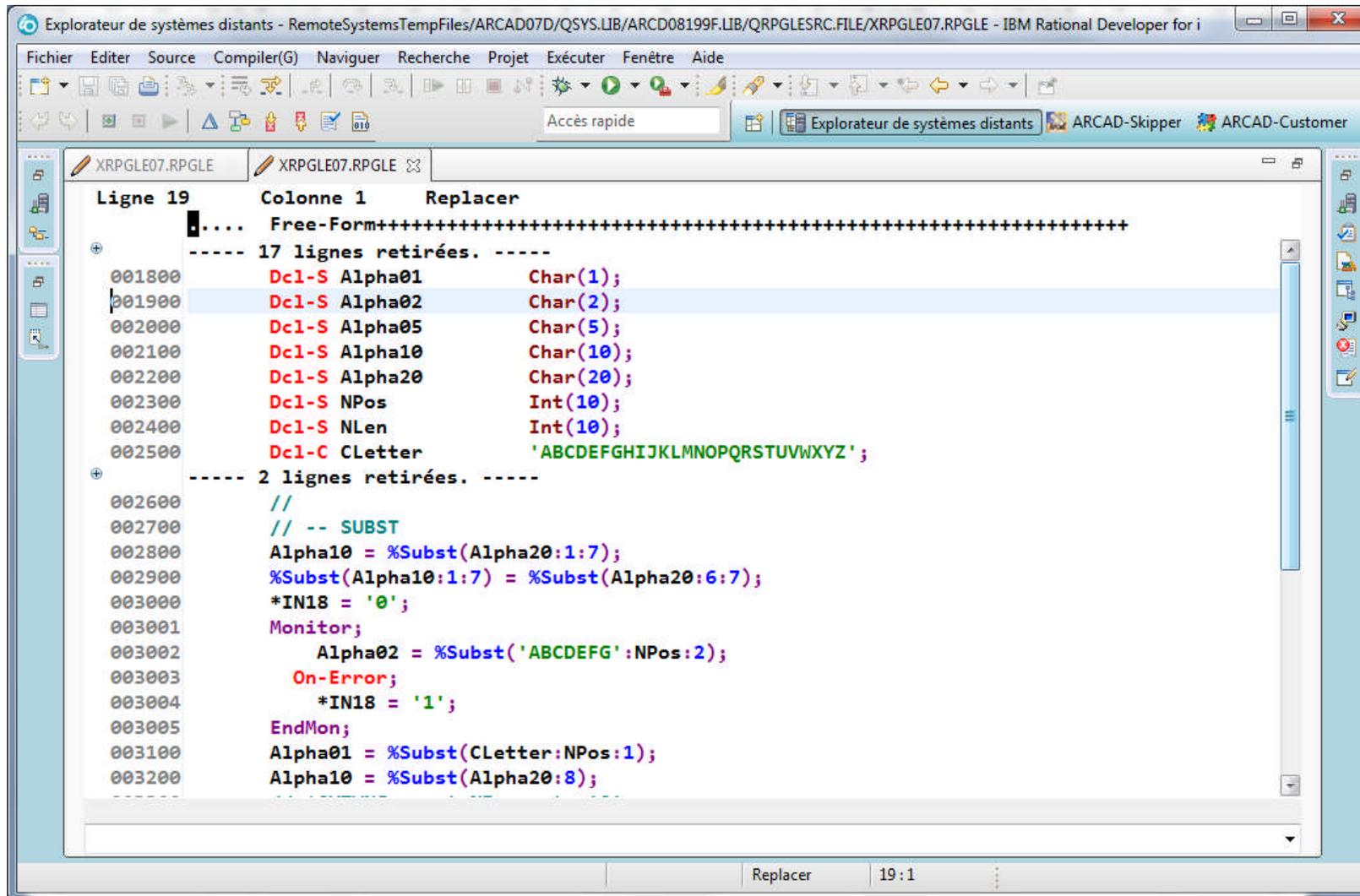
# Codes opér. SUBST (1)

The screenshot shows the IBM Rational Developer for i interface. The main window displays the source code for file XRPGLE07.RPGLE. The code includes several data declarations (D) and control statements (C) for the SUBST operation. The SUBST codes are used to substitute values from one field into another based on specific criteria.

```

Ligne 18      Colonne 1      Insérer
.....DName+++++++ETDsFrom+++To/L+++IDc.Keywords+++++++Comments+++++++
----- 17 lignes retirées. -----
001800      D Alpha01          s              1a
001900      D Alpha02          s              2a
002000      D Alpha05          s              5a
002100      D Alpha10          s             10a
002200      D Alpha20          s             20a
002300      D NPos             s             10i 0
002400      D NLen             s             10i 0
002500      D CLetter          c              'ABCDEFGHIJKLMNOPQRSTUVWXYZ'
002600      D*
002700      C*-- SUBST
002800      C      7          Subst(p) Alpha20      Alpha10
002900      C      7          Subst      Alpha20:6    Alpha10
003000      C      2          Subst      'ABCDEFG':NPosAlpha02      18
003100      C      1          Subst      CLetter:NPos Alpha01
003200      C              Subst      Alpha20 : 8    Alpha10
003300      C      NLen       Subst(e) Alpha20:6    Alpha05
003400      C*
003500      C              Seton              Lr
    
```

## Codes opér. SUBST (2)



```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLESRC.FILE/XRPGLE07.RPGLE - IBM Rational Developer for i
Fichier  Editer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
Accès rapide  Explorateur de systèmes distants  ARCAD-Skipper  ARCAD-Customer

XRPGLE07.RPGLE  XRPGLE07.RPGLE
Ligne 19  Colonne 1  Replacer
.... Free-Form+++++
----- 17 lignes retirées. -----
001800  Dcl-S Alpha01      Char(1);
001900  Dcl-S Alpha02      Char(2);
002000  Dcl-S Alpha05      Char(5);
002100  Dcl-S Alpha10      Char(10);
002200  Dcl-S Alpha20      Char(20);
002300  Dcl-S NPos         Int(10);
002400  Dcl-S NLen         Int(10);
002500  Dcl-C CLetter     'ABCDEFGHJKLMNOPQRSTUVWXYZ';
----- 2 lignes retirées. -----
002600  //
002700  // -- SUBST
002800  Alpha10 = %Subst(Alpha20:1:7);
002900  %Subst(Alpha10:1:7) = %Subst(Alpha20:6:7);
003000  *IN18 = '0';
003001  Monitor;
003002      Alpha02 = %Subst('ABCDEFGF':NPos:2);
003003      On-Error;
003004      *IN18 = '1';
003005  EndMon;
003100  Alpha01 = %Subst(CLetter:NPos:1);
003200  Alpha10 = %Subst(Alpha20:8);
```

## Codes opér. SUBST (3)

The screenshot shows the IBM Rational Developer for i interface. The main window displays a COBOL program named XRPGL07.RPGLE. The editor shows the following code:

```

Ligne 40      Colonne 1      Replacer
.....1.....2.....3.....4.....5.....6.....7.....8.....9.....+
002300      Dcl-S NPos          Int(10);
002400      Dcl-S NLen          Int(10);
002500      Dcl-C CLetter        'ABCDEFGHJKLMNOPQRSTUVWXYZ';
002501      Dcl-S TTimeOk        Time(*Iso)      inz('00.00.00');
002502      Dcl-S TTimeError      Char(6)        inz('888888');
002600      //
----- 11 lignes retirées. -----
003300      // *CVTWNG : set %Error to '0'
003301      Test(e) TTimeOk;
003302      Monitor;
003303          If NLen >= 5;
003304              Alpha05 = %Subst(Alpha20:6:NLen);
003305          Else;
003306              %Subst(Alpha05:1:NLen) = %Subst(Alpha20:6:
003307                  NLen);
003308          EndIf;
003309          On-Error;
003310      // *CVTWNG : set %Error to '1'
003311      Test(et) *hms0 TTimeError;
003312      EndMon;
003400      //
003500      *INLR = '1';
  
```

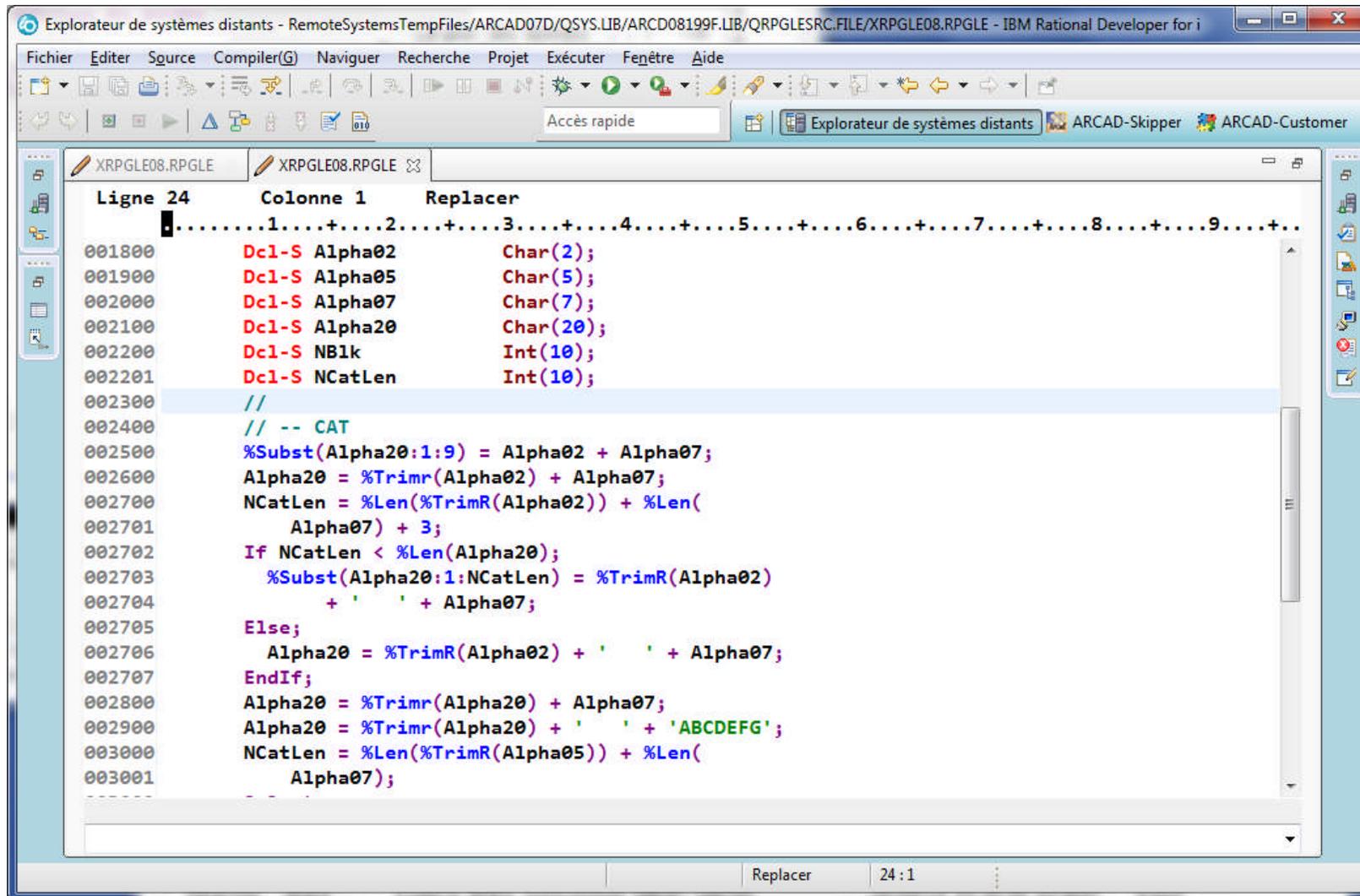
The status bar at the bottom of the editor shows "Replacer" and "40 : 1".

# Code opér. CAT (1)

```

Explorateur de systèmes distants - RemoteSystemsTempFiles\ARCAD07D\QSYS.LIB\ARCD08199G.LIB\QRPGLSRC.FILE\XRPGLE08.RPGLE - IBM Rational Developer for i
Fichier Éditer Source Compiler(G) Naviguer Recherche Projet Exécuter Fenêtre Aide
XRPGLE08.RPGLE XRPGLE08.RPGLE
Ligne 25      Colonne 24      Insérer
.....CL0N01Factor1+++++Opcode(E)+Factor2++++++Result++++++Len++D+HiLoEq....Comments+++++
----- 17 lignes retirées. -----
001800      D Alpha02          s              2a
001900      D Alpha05          s              5a
002000      D Alpha07          s              7a
002100      D Alpha20         s             20a
002200      D NB1k            s             10i 0
002300      D*
002400      C*-- CAT
002500      C   Alpha02      | Cat   Alpha07   Alpha20
002600      C   Alpha02      | Cat(p) Alpha07:0 Alpha20
002700      C   Alpha02      | Cat   Alpha07:3 Alpha20
002800      C                | Cat(p) Alpha07:0 Alpha20
002900      C                | Cat   'ABCDEFGG':3 Alpha20
003000      C   Alpha05      | Cat   Alpha07:NB1k Alpha20
003100      C*
003200      C                | Seton                                     Lr
    
```

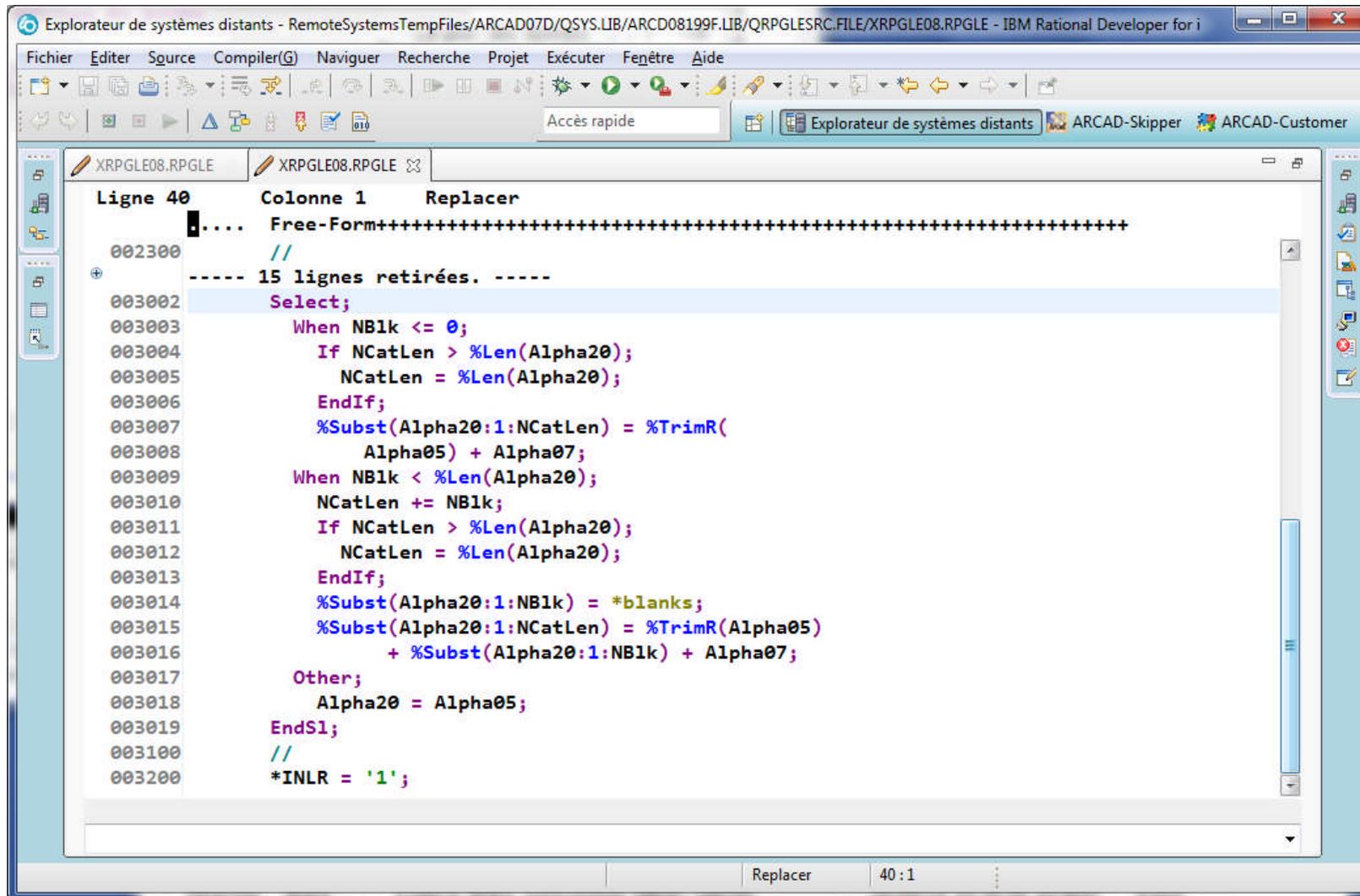
## Code opér. CAT (2)



The screenshot displays the IBM Rational Developer for i interface. The main window shows a COBOL program named XRPGL08.RPGLE. The code is displayed in a text editor with a grid overlay. The grid has columns for 'Ligne' (Line), 'Colonne' (Column), and 'Replacer' (Replace). The code includes several declarations and logic for concatenating strings (Alpha02 and Alpha07) into Alpha20 and calculating lengths (NCatLen). Comments indicate the purpose of the code as CAT (Concatenation).

```
001800      Dcl-S Alpha02      Char(2);
001900      Dcl-S Alpha05      Char(5);
002000      Dcl-S Alpha07      Char(7);
002100      Dcl-S Alpha20      Char(20);
002200      Dcl-S NB1k          Int(10);
002201      Dcl-S NCatLen     Int(10);
002300      //
002400      // -- CAT
002500      %Subst(Alpha20:1:9) = Alpha02 + Alpha07;
002600      Alpha20 = %Trimr(Alpha02) + Alpha07;
002700      NCatLen = %Len(%TrimR(Alpha02)) + %Len(
002701          Alpha07) + 3;
002702      If NCatLen < %Len(Alpha20);
002703          %Subst(Alpha20:1:NCatLen) = %TrimR(Alpha02)
002704              + ' ' + Alpha07;
002705      Else;
002706          Alpha20 = %TrimR(Alpha02) + ' ' + Alpha07;
002707      EndIf;
002800      Alpha20 = %Trimr(Alpha20) + Alpha07;
002900      Alpha20 = %Trimr(Alpha20) + ' ' + 'ABCDEFGF';
003000      NCatLen = %Len(%TrimR(Alpha05)) + %Len(
003001          Alpha07);
```

## Code opér. CAT (3)



The screenshot shows the IBM Rational Developer for i interface. The main window displays a COBOL program named XRPGL08.RPGLE. The code is as follows:

```
Ligne 40      Colonne 1      Replacer
..... Free-Form+++++
002300      //
----- 15 lignes retirées. -----
003002      Select;
003003          When NBlk <= 0;
003004              If NCatLen > %Len(Alpha20);
003005                  NCatLen = %Len(Alpha20);
003006              EndIf;
003007              %Subst(Alpha20:1:NCatLen) = %TrimR(
003008                  Alpha05) + Alpha07;
003009          When NBlk < %Len(Alpha20);
003010              NCatLen += NBlk;
003011              If NCatLen > %Len(Alpha20);
003012                  NCatLen = %Len(Alpha20);
003013              EndIf;
003014              %Subst(Alpha20:1:NBlk) = *blanks;
003015              %Subst(Alpha20:1:NCatLen) = %TrimR(Alpha05)
003016                  + %Subst(Alpha20:1:NBlk) + Alpha07;
003017          Other;
003018              Alpha20 = Alpha05;
003019      EndS1;
003100      //
003200      *INLR = '1';
```

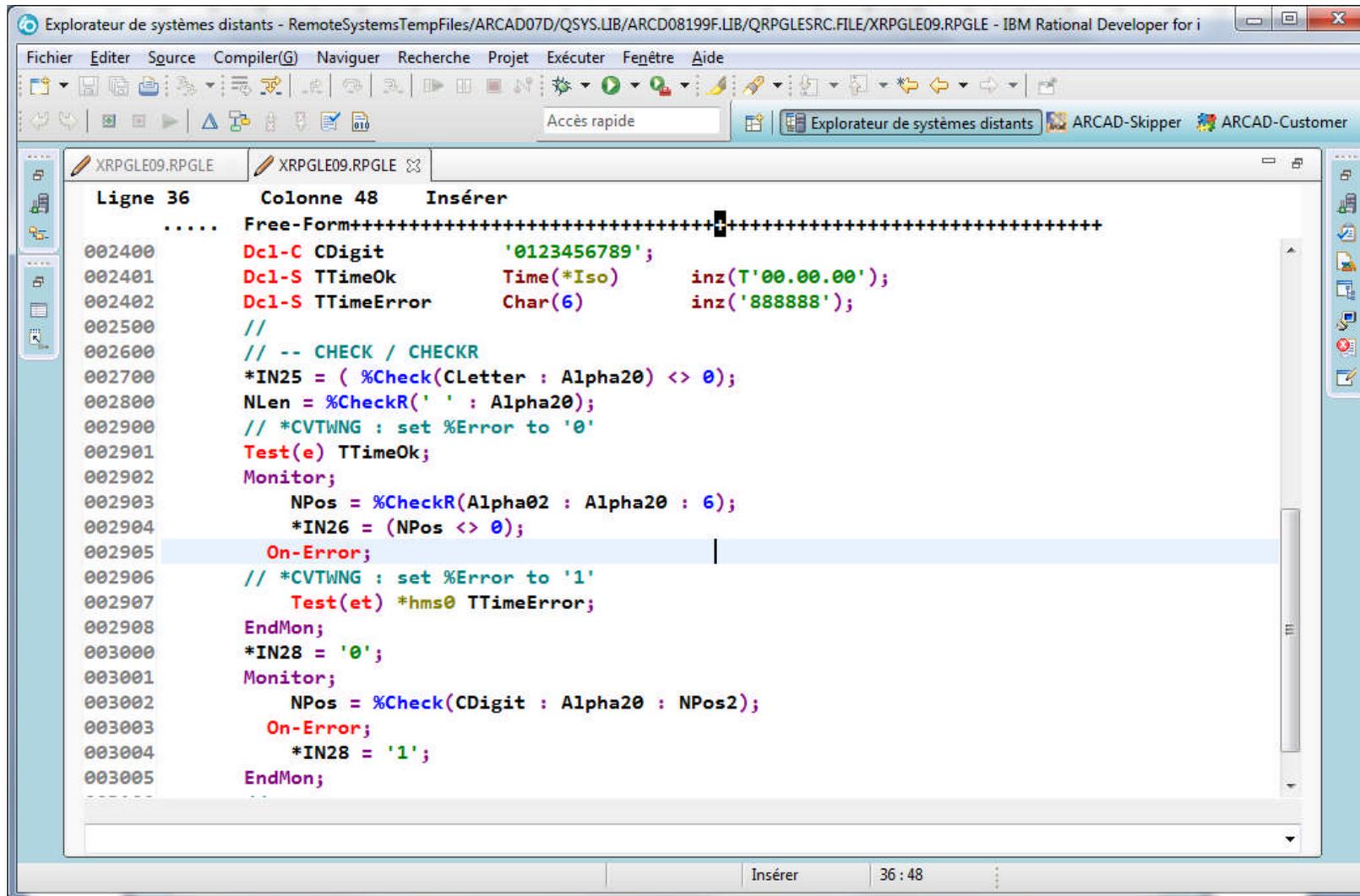
# Codes opér. CHECK, CHECKR (1)

The screenshot shows the IBM Rational Developer for i interface. The main window displays the source code of an RPGLE program (XRPGL09.RPGL). The code includes several data declarations and operations. The operations section contains several CHECK and CHECKR statements. The CHECKR statement is used to check the length of a variable against a specified value.

```

Ligne 18      Colonne 1      Insérer
.....DName+++++ETDsFrom+++To/L+++IDc.Keywords+++++Comments+++++
----- 17 lignes retirées. -----
001800      D Alpha02          s              2a
001900      D Alpha20         s              20a
002000      D NLen            s              10i 0
002100      D NPos           s              10i 0
002200      D NPos2          s              10i 0
002300      D CLetter        c              'ABCDEFGHJKLMNPQRSTUVWXYZ'
002400      D CDigit         c              '0123456789'
002500      D*
002600      C*-- CHECK / CHECKR
002700      C   CLetter      Check      Alpha20          25
002800      C   ' '          Checkr     Alpha20          NLen
002900      C   Alpha02     Checkr(e)  Alpha20:6    NPos          26
003000      C   CDigit      Check      Alpha20:NPos2 NPos          28
003100      C*
003200      C               Seton          Lr
    
```

# Codes opér. CHECK, CHECKR (2)



The screenshot displays the IBM Rational Developer for i interface. The main window shows a COBOL program named XRPGL09.RPGLE. The code is as follows:

```
Ligne 36      Colonne 48      Insérer
..... Free-Form+++++
002400      Dcl-C CDigit          '0123456789';
002401      Dcl-S TTimeOk       Time(*Iso)      inz(T'00.00.00');
002402      Dcl-S TTimeError    Char(6)        inz('888888');
002500      //
002600      // -- CHECK / CHECKR
002700      *IN25 = (%Check(CLetter : Alpha20) <> 0);
002800      NLen = %CheckR(' ' : Alpha20);
002900      // *CVTWNG : set %Error to '0'
002901      Test(e) TTimeOk;
002902      Monitor;
002903          NPos = %CheckR(Alpha02 : Alpha20 : 6);
002904          *IN26 = (NPos <> 0);
002905      On-Error;
002906      // *CVTWNG : set %Error to '1'
002907      Test(et) *hms0 TTimeError;
002908      EndMon;
003000      *IN28 = '0';
003001      Monitor;
003002          NPos = %Check(CDigit : Alpha20 : NPos2);
003003      On-Error;
003004          *IN28 = '1';
003005      EndMon;
```

The status bar at the bottom of the editor shows "Insérer" and "36 : 48".

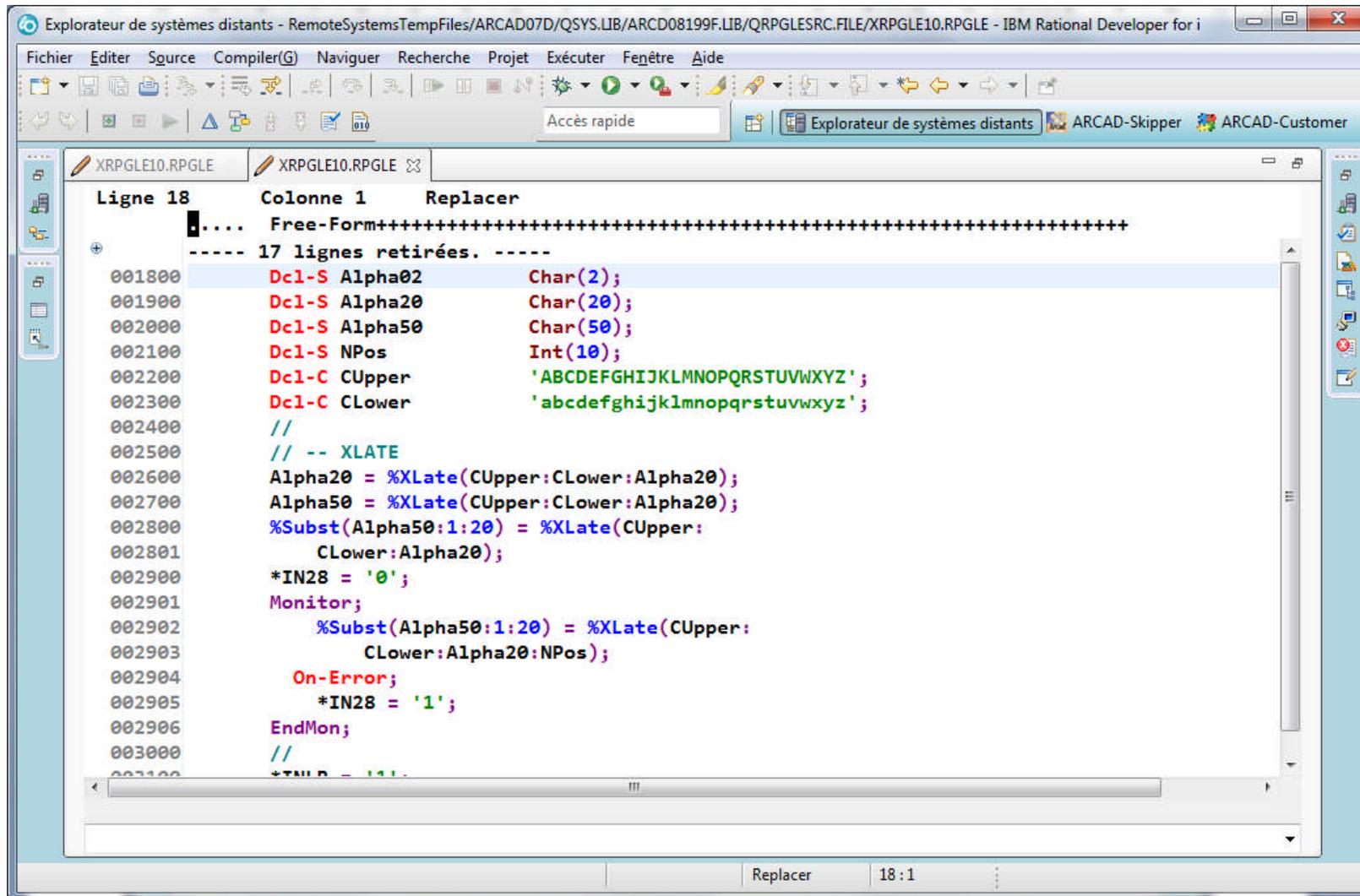
# Code opér. XLATE (1)

The screenshot shows the IBM Rational Developer for i interface with the following code in the editor:

```

Ligne 19      Colonne 39      Insérer
.....DName+++++ETDsFrom+++To/L+++IDc.Keywords+++++Comments+++++
----- 17 lignes retirées. -----
001800      D Alpha02          s              2a
001900      D Alpha20         s              20a
002000      D Alpha50         s              50a
002100      D NPos            s              10i 0
002200      D CUpper          c              'ABCDEFGHIJKLMNOPQRSTUVWXYZ'
002300      D CLower          c              'abcdefghijklmnopqrstuvwxyz'
002400      D*
002500      C*-- XLATE
002600      C      CUpper:CLower Xlate      Alpha20      Alpha20
002700      C      CUpper:CLower Xlate(p)   Alpha20      Alpha50
002800      C      CUpper:CLower Xlate      Alpha20      Alpha50
002900      C      CUpper:CLower Xlate      Alpha20:NPos Alpha50      28
003000      C*
003100      C                      Seton          Lr
    
```

## Code opér. XLATE (2)



```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLESRC.FILE/XRPGL10.RPGLE - IBM Rational Developer for i
Fichier  Éditer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
Accès rapide  Explorateur de systèmes distants  ARCAD-Skipper  ARCAD-Customer

XRPGL10.RPGLE  XRPGL10.RPGLE
Ligne 18  Colonne 1  Replacer
.... Free-Form+++++
----- 17 lignes retirées. -----
001800  Dcl-S Alpha02      Char(2);
001900  Dcl-S Alpha20     Char(20);
002000  Dcl-S Alpha50    Char(50);
002100  Dcl-S NPos       Int(10);
002200  Dcl-C CUpper     'ABCDEFGHIJKLMNOPQRSTUVWXYZ';
002300  Dcl-C CLower     'abcdefghijklmnopqrstuvwxyz';
002400  //
002500  // -- XLATE
002600  Alpha20 = %XLate(CUpper:CLower:Alpha20);
002700  Alpha50 = %XLate(CUpper:CLower:Alpha20);
002800  %Subst(Alpha50:1:20) = %XLate(CUpper:
002801  CLower:Alpha20);
002900  *IN28 = '0';
002901  Monitor;
002902  %Subst(Alpha50:1:20) = %XLate(CUpper:
002903  CLower:Alpha20:NPos);
002904  On-Error;
002905  *IN28 = '1';
002906  EndMon;
003000  //
003100  *ENDP = 111.
```

# Code opér. SCAN (1)

```

Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199G.LIB/QRPGLESRC.FILE/XRPGL11.RPGLE - IBM Rational Developer for i
Fichier  Éditer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
-----
XRPGL11.RPGLE
Ligne 27      Colonne 21      Replacer
.....1.....+.....2.....+.....3.....+.....4.....+.....5.....+.....6.....+.....7.....+.....8.....+.....9.....+
----- 17 lignes retirées. -----
001800      D Alpha01          s              1a
001900      D Alpha02          s              2a
002000      D Alpha10         s             10a
002100      D Alpha50         s             50a
002200      D NPos            s             10i 0
002300      D NPos1           s             10i 0
002400      D NPos2           s             10i 0
002500      D CUpper          c             'ABCDEFGHJKLMNPQRSTUVWXYZ'
002600      D a_NPos          s             10i 0 Dim(10)
002700      D*
002800      C*-- SCAN
002900      C   Alpha02      Scan   Alpha50   NPos
003000      C   Alpha01      Scan   CUpper      28
003100      C   Alpha10:NPos1 Scan   Alpha50   NPos      29
003200      C   Alpha10      Scan(e) Alpha50:NPos2 NPos
003300      C*
003400      C   'A'          Scan   Alpha50   a_NPos
003500      C*
003600      C               Seton      Lr
    
```

## Code opér. SCAN (2)

```

Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLSRC.FILE/XRPGLE11.RPGLE - IBM Rational Developer for i
Fichier Éditer Source Compiler(G) Naviguer Recherche Projet Exécuter Fenêtre Aide
Accès rapide Explorateur de systèmes distants ARCAD-Skipper ARCAD-Customer
XRPGLE11.RPGLE XRPGLE11.RPGLE
Ligne 44      Colonne 43      Insérer
.....1.....2.....3.....4.....5.....6.....7.....8.....9.....+
002500      Dcl-C CUpper          'ABCDEFGHJKLMNOPQRSTUVWXYZ';
002600      Dcl-S a_NPos         Int(10)          Dim(10);
002601      Dcl-S TTimeOk       Time(*Iso)          inz(T'00.00.00');
002602      Dcl-S TTimeError   Char(6)          inz('888888');
002700      //
002800      // -- SCAN
002900      NPos = %Scan(Alpha02 : Alpha50);
003000      *IN28 = ( %Scan(Alpha01 : CUpper) <> 0);
003100      NPos = %Scan(%Subst(Alpha10:1:NPos1) :
003101      Alpha50);
003102      *IN29 = (NPos <> 0);
003200      // *CVTWNG : set %Error to '0'
003201      Test(e) TTimeOk;
003202      Monitor;
003203      NPos = %Scan(Alpha10 : Alpha50 : NPos2);
003204      On-Error;
003205      // *CVTWNG : set %Error to '1'
003206      Test(et) *hms0 TTimeError;
003207      EndMon;
003300      //
003400      C      'A'          Scan      Alpha50      a_NPos
003500      //
  
```

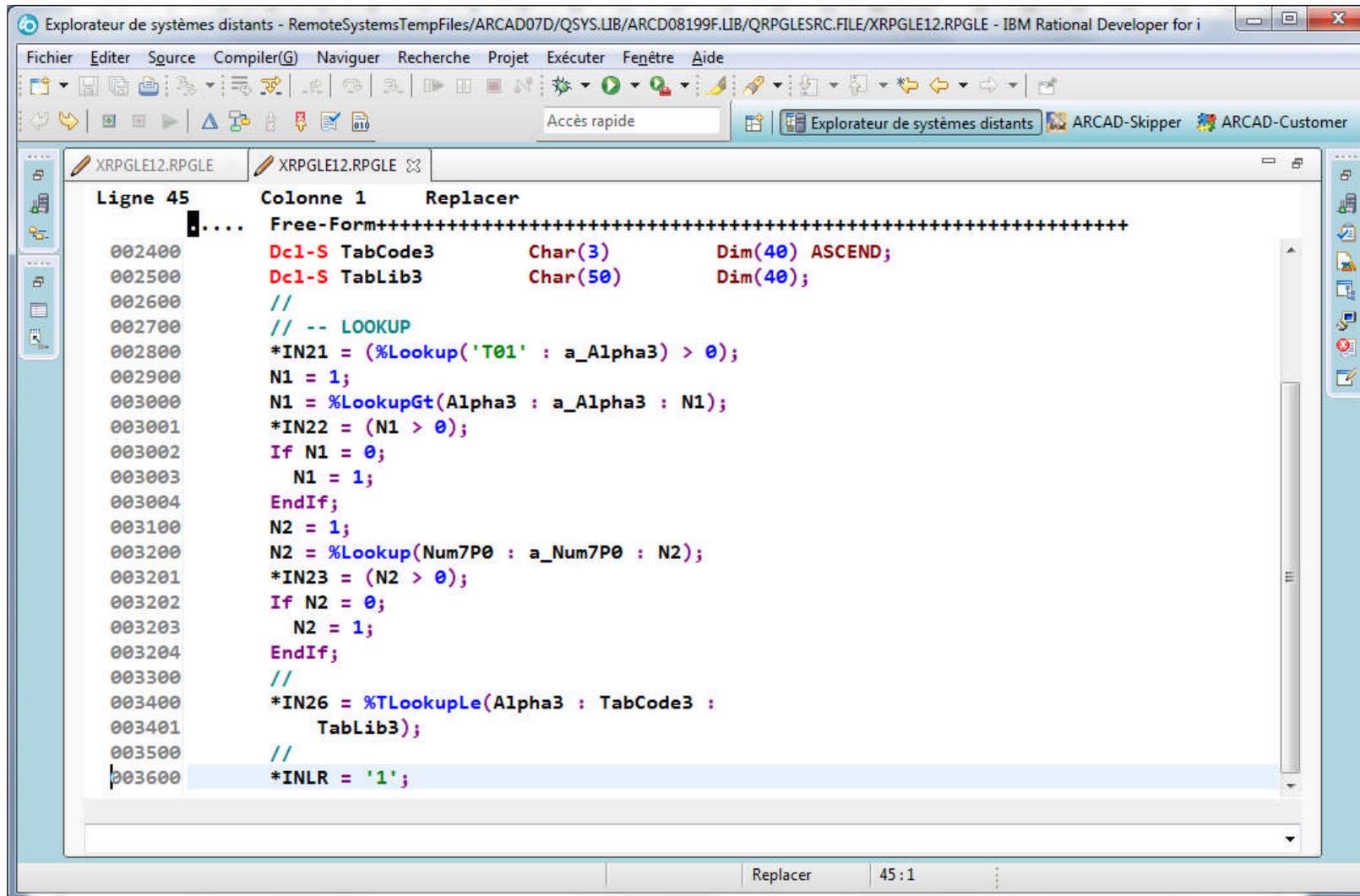
# Codes opér. LOOKUP (1)

The screenshot shows the IBM Rational Developer for i interface. The main window displays a COBOL program named XRPGL12.RPGLE. The code is shown in a table-like format with columns for line number, data type, field name, and format. The code includes several data declarations and a series of LOOKUP codes starting from line 002700. The LOOKUP codes are used to look up values from tables defined in the program, such as a\_Alpha3, Num7P0, and TabCode3. The status bar at the bottom indicates the current cursor position is at line 18, column 1.

```

Ligne 18      Colonne 1      Insérer
.....DName+++++ETDsFrom+++To/L+++IDc.Keywords+++++Comments+++++
----- 17 lignes retirées. -----
001800      D a_Num7P0      s              7p 0  Dim(25)
001900      D a_Alpha3      s              3a      Dim(50) ASCEND
002000      D Num7P0       s              7p 0
002100      D Alpha3       s              3a
002200      D N1           s              10i 0
002300      D N2           s              10i 0
002400      D TabCode3     s              3a      Dim(40) ASCEND
002500      D TabLib3     s              50a     Dim(40)
002600      D*
002700      C*-- LOOKUP
002800      C      'T01'      Lookup      a_Alpha3      21
002900      C      Z-add      1          N1
003000      C      Alpha3     Lookup      a_Alpha3(N1)  22
003100      C      Z-add      1          N2
003200      C      Num7P0     Lookup      a_Num7P0(N2)  23
003300      C*
003400      C      Alpha3     Lookup      TabCode3      TabLib3      2626
003500      C*
003600      C      Seton      Lr
    
```

## Code opér. LOOKUP (2)



The screenshot displays the IBM Rational Developer for i interface. The main window shows the source code for a program named XRPGL12.RPGLE. The code is written in RPGLE and includes several declarations and logic statements. The current cursor position is at line 45, column 1, with the word 'Replacer' visible in the status bar.

```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLSRC.FILE/XRPGL12.RPGLE - IBM Rational Developer for i
Fichier  Éditer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
Accès rapide  Explorateur de systèmes distants  ARCAD-Skipper  ARCAD-Customer

XRPGL12.RPGLE  XRPGL12.RPGLE
Ligne 45  Colonne 1  Replacer
..... Free-Form+++++
002400  Dc1-S TabCode3      Char(3)      Dim(40) ASCEND;
002500  Dc1-S TabLib3      Char(50)     Dim(40);
002600  //
002700  // -- LOOKUP
002800  *IN21 = (%Lookup('T01' : a_Alpha3) > 0);
002900  N1 = 1;
003000  N1 = %LookupGt(Alpha3 : a_Alpha3 : N1);
003001  *IN22 = (N1 > 0);
003002  If N1 = 0;
003003     N1 = 1;
003004  EndIf;
003100  N2 = 1;
003200  N2 = %Lookup(Num7P0 : a_Num7P0 : N2);
003201  *IN23 = (N2 > 0);
003202  If N2 = 0;
003203     N2 = 1;
003204  EndIf;
003300  //
003400  *IN26 = %TLookupLe(Alpha3 : TabCode3 :
003401     TabLib3);
003500  //
003600  *INLR = '1';
```

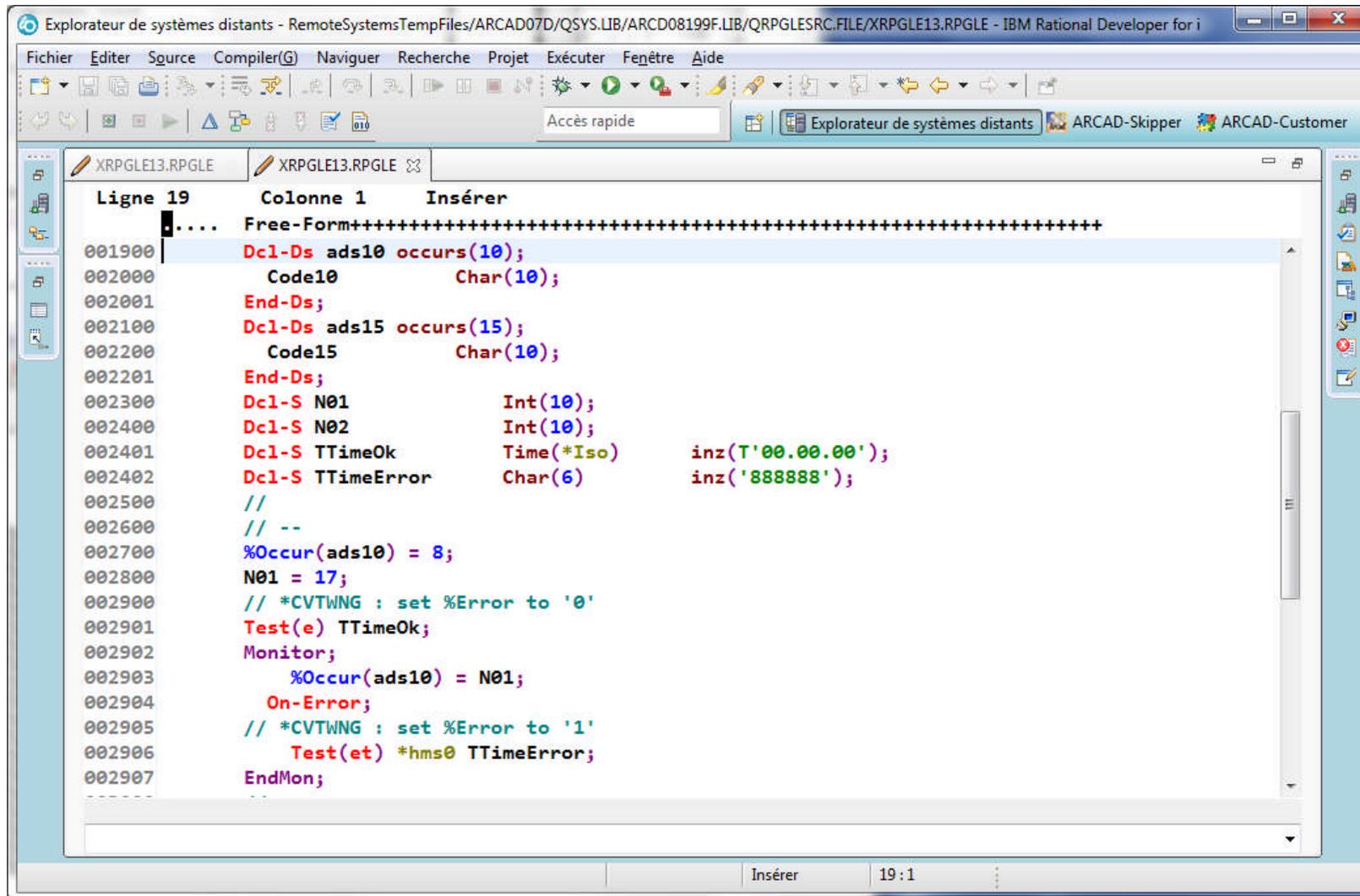
# Code opér. OCCUR (1)

The screenshot shows the IBM Rational Developer for i interface with the following code in XRPGL13.RPGLE:

```

Ligne 18      Colonne 1      Insérer
.....1.....+.....2.....+.....3.....+.....4.....+.....5.....+.....6.....+.....7.....+.....8.....+.....9.....+
----- 17 lignes retirées. -----
001800      D*
001900      D ads10          ds          occurs(10)
002000      D Code10          10A
002100      D ads15          ds          occurs(15)
002200      D Code15          10A
002300      D N01          s          10i 0
002400      D N02          s          10i 0
002500      D*
002600      C*--
002700      C      8          Occur      ads10
002800      C          eval      N01 = 17
002900      C      N01      Occur(e)  ads10
003000      C*--
003100      C          Occur      ads10      N01
003200      C*--
003300      C      N01      Occur      ads10          48
003400      C*--
003500      C      ads10      Occur(e)  ads15      N02
003600      C*
003700      C          Seton          Lr
    
```

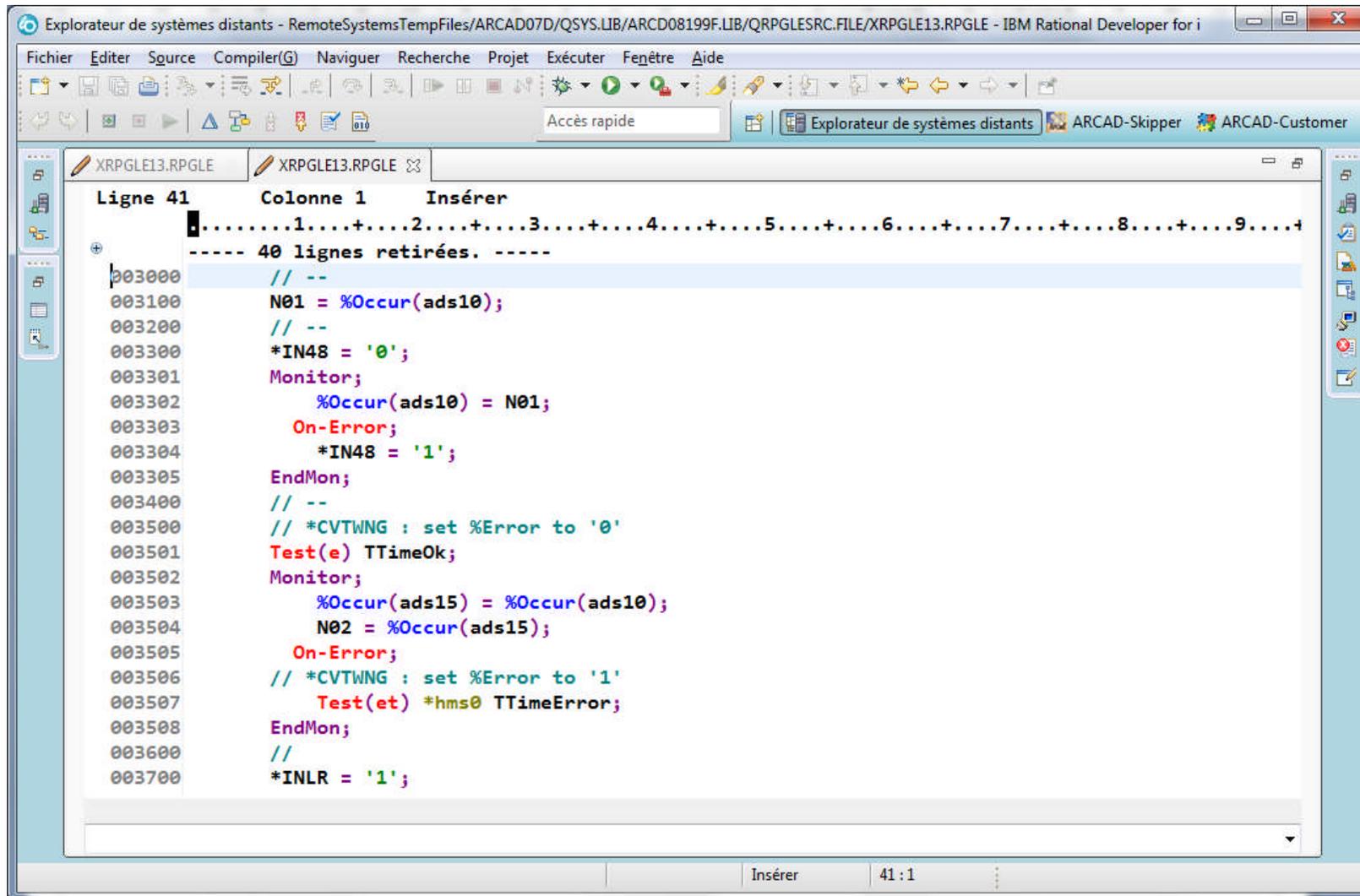
## Code opér. OCCUR (2)



The screenshot shows the IBM Rational Developer for i interface. The main window displays the source code for XRPGL13.RPGLE. The code is as follows:

```
Ligne 19      Colonne 1      Insérer
..... Free-Form+++++
001900      Dcl-Ds ads10 occurs(10);
002000          Code10          Char(10);
002001      End-Ds;
002100      Dcl-Ds ads15 occurs(15);
002200          Code15          Char(10);
002201      End-Ds;
002300      Dcl-S N01          Int(10);
002400      Dcl-S N02          Int(10);
002401      Dcl-S TTimeOk    Time(*Iso)      inz(T'00.00.00');
002402      Dcl-S TTimeError  Char(6)        inz('888888');
002500      //
002600      // --
002700      %Occur(ads10) = 8;
002800      N01 = 17;
002900      // *CVTWNG : set %Error to '0'
002901      Test(e) TTimeOk;
002902      Monitor;
002903          %Occur(ads10) = N01;
002904          On-Error;
002905      // *CVTWNG : set %Error to '1'
002906          Test(et) *hms0 TTimeError;
002907      EndMon;
```

## Code opér. OCCUR (3)



The screenshot displays the IBM Rational Developer for i interface. The main window shows the source code for a COBOL program named XRPGL13.RPGLE. The code is displayed in a grid format with columns for line number, column number, and the text to be inserted. The code includes comments, variable declarations, and logic for handling errors during an OCCUR statement.

```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLESRC.FILE/XRPGL13.RPGLE - IBM Rational Developer for i
Fichier  Éditer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
Accès rapide  Explorateur de systèmes distants  ARCAD-Skipper  ARCAD-Customer

XRPGL13.RPGLE  XRPGL13.RPGLE
Ligne 41  Colonne 1  Insérer
.....1.....+.....2.....+.....3.....+.....4.....+.....5.....+.....6.....+.....7.....+.....8.....+.....9.....+
----- 40 lignes retirées. -----
003000  // --
003100  N01 = %Occur(ads10);
003200  // --
003300  *IN48 = '0';
003301  Monitor;
003302  %Occur(ads10) = N01;
003303  On-Error;
003304  *IN48 = '1';
003305  EndMon;
003400  // --
003500  // *CVTWNG : set %Error to '0'
003501  Test(e) TTimeOk;
003502  Monitor;
003503  %Occur(ads15) = %Occur(ads10);
003504  N02 = %Occur(ads15);
003505  On-Error;
003506  // *CVTWNG : set %Error to '1'
003507  Test(et) *hms0 TTimeError;
003508  EndMon;
003600  //
003700  *INLR = '1';

Insérer  41 : 1
```

# Code opér. MOVEA (1)

The screenshot shows the IBM Rational Developer for i interface. The main window displays the source code for file XRPGL14.RPGLE. The code is structured as follows:

```

Ligne 34      Colonne 60      Insérer
.....CL0N01Factor1+++++Opcode(E)+Factor2+++++Result+++++Len++D+HiLoEq... Comments+++++
001800      D a_Num5P0          s              5p 0      Dim(25)
001900      D a_Alpha3          s              3a          Dim(50)
002000      D a_Alpha3B        s              3a          Dim(50)
002100      D a_Alpha7          s              7a          Dim(30)
002200      D Num5P0           s              5p 0
002300      D Alpha2           s              2a
002400      D Alpha3           s              3a
002500      D Alpha50          s              50a
002600      D NPos            s              10i 0
002700      D*
002800      C*-- MOVEA lit. -> Array
002900      C                   Movea      *blanks   a_Alpha3
003000      C                   Movea      *hival   a_Alpha3
003100      C                   Movea      'ABC'    a_Alpha3
003200      C                   Movea      *ALL 'ABC' a_Alpha3
003300      C                   Movea      *ALL 'AB'  a_Alpha3
003400      C                   Movea      *on      *IN(5)
003500      C                   Movea      '00'    *IN(5)
003600      C                   Movea      45      a_Num5P0(6)
003700      C                   Movea      *ALL 'ABC' a_Alpha3(4)
003800      C                   Movea(p) 'ABCDEF' a_Alpha3(4)
003900      C*
  
```

The status bar at the bottom of the editor shows "Insérer" and "34 : 60".

## Code opér. MOVEA (2)

The screenshot displays the IBM Rational Developer for i interface. The main window shows the source code for file XRPGL14.RPGLE. The code is organized into sections separated by comments (C\*) and includes several MOVEA operations. The status bar at the bottom indicates the current cursor position is at line 39, column 1.

```

Ligne 39      Colonne 1      Insérer
.....1.....+.....2.....+.....3.....+.....4.....+.....5.....+.....6.....+.....7.....+.....8.....+.....9.....+
003900      C*
004000      C*-- MOVEA  Array -> Array
004100      C          Movea    a_Alpha3    a_Alpha3B(1)
004200      C          Movea    a_Alpha3(3)  a_Alpha3B
004300      C          Movea    a_Alpha7(4)  a_Alpha3(8)
004400      C*
004500      C*-- MOVEA  Alpha/num -> Array
004600      C          Movea    Alpha2      a_Alpha3(7)
004700      C          Movea    Alpha3      a_Alpha3
004800      C          Movea    Alpha50    a_Alpha3(9)
004900      C          Movea    Num5P0    a_Num5P0
005000      C*
005100      C*-- MOVEA  Array --> Alpha/num
005200      C          Movea    a_Alpha3(7)  Alpha2
005300      C          Movea    a_Alpha3      Alpha3
005400      C          Movea    a_Alpha3(9)  Alpha50
005500      C          Movea    a_Num5P0    Num5P0
005600      C*
005700      C*-- MOVEA  variable index
005800      C          Movea    Alpha50      a_Alpha3(NPos)
005900      C*
006000      C          Seton                      Lr
  
```

## Code opér. MOVEA (3)

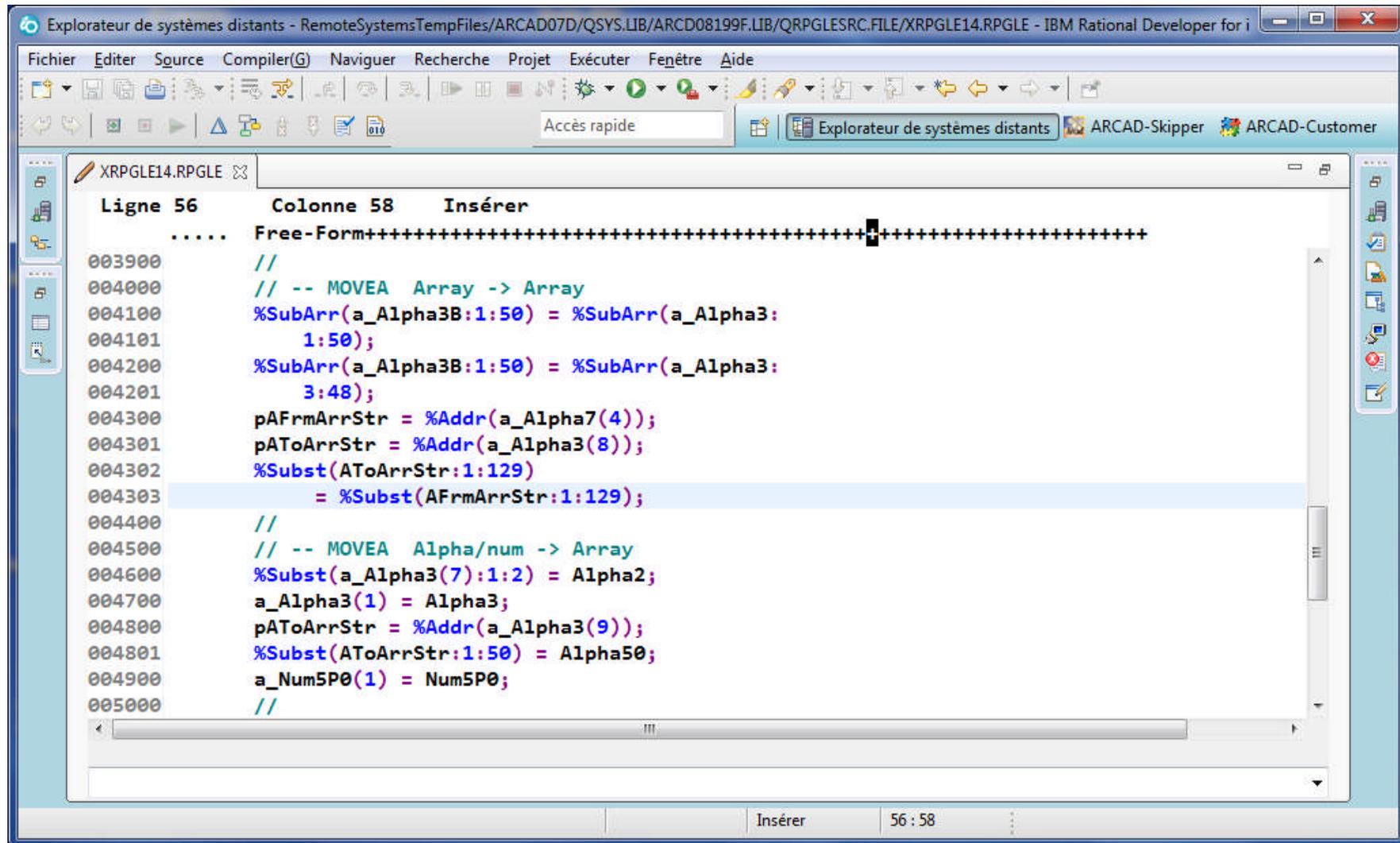
The screenshot shows the IBM Rational Developer for i interface. The main window displays the source code for file XRPGL14.RPGLE. The code is in RPL format and includes several declarations and operations. The current cursor position is at line 34, column 69, in the 'Insérer' (Insert) mode.

```

Ligne 34      Colonne 69      Insérer
..... Free-Form+++++
002600      Dcl-S NPos              Int(10);
002601      Dcl-S pAToArrStr     Pointer;
002602      Dcl-S AToArrStr     Char(65535)   Based(pAToArrStr);
002603      Dcl-S pAFrmArrStr   Pointer;
002604      Dcl-S AFrmArrStr   Char(65535)   Based(pAFrmArrStr);
002605      Dcl-S NToArrStrLen Int(10);
002700      //
002800      // -- MOVEA lit. -> Array
002900      a_Alpha3 = *blanks;
003000      a_Alpha3 = *hival;
003100      a_Alpha3(1) = 'ABC';
003200      a_Alpha3 = *ALL'ABC';
003300      pAToArrStr = %Addr(a_Alpha3);
003301      %Subst(AToArrStr:1:150) = *ALL'AB';
003400      %SubArr(*IN:5) = *on;
003500      pAToArrStr = %Addr(*IN(5));
003501      %Subst(AToArrStr:1:2) = '00';
003600      a_Num5P0(6) = 45;
003700      %SubArr(a_Alpha3:4) = *ALL'ABC';
003800      pAToArrStr = %Addr(a_Alpha3(4));
003801      %Subst(AToArrStr:1:141) = 'ABCDEF';
  
```

The status bar at the bottom of the editor shows 'Insérer' and '34 : 69'.

# Code opér. MOVEA (4)

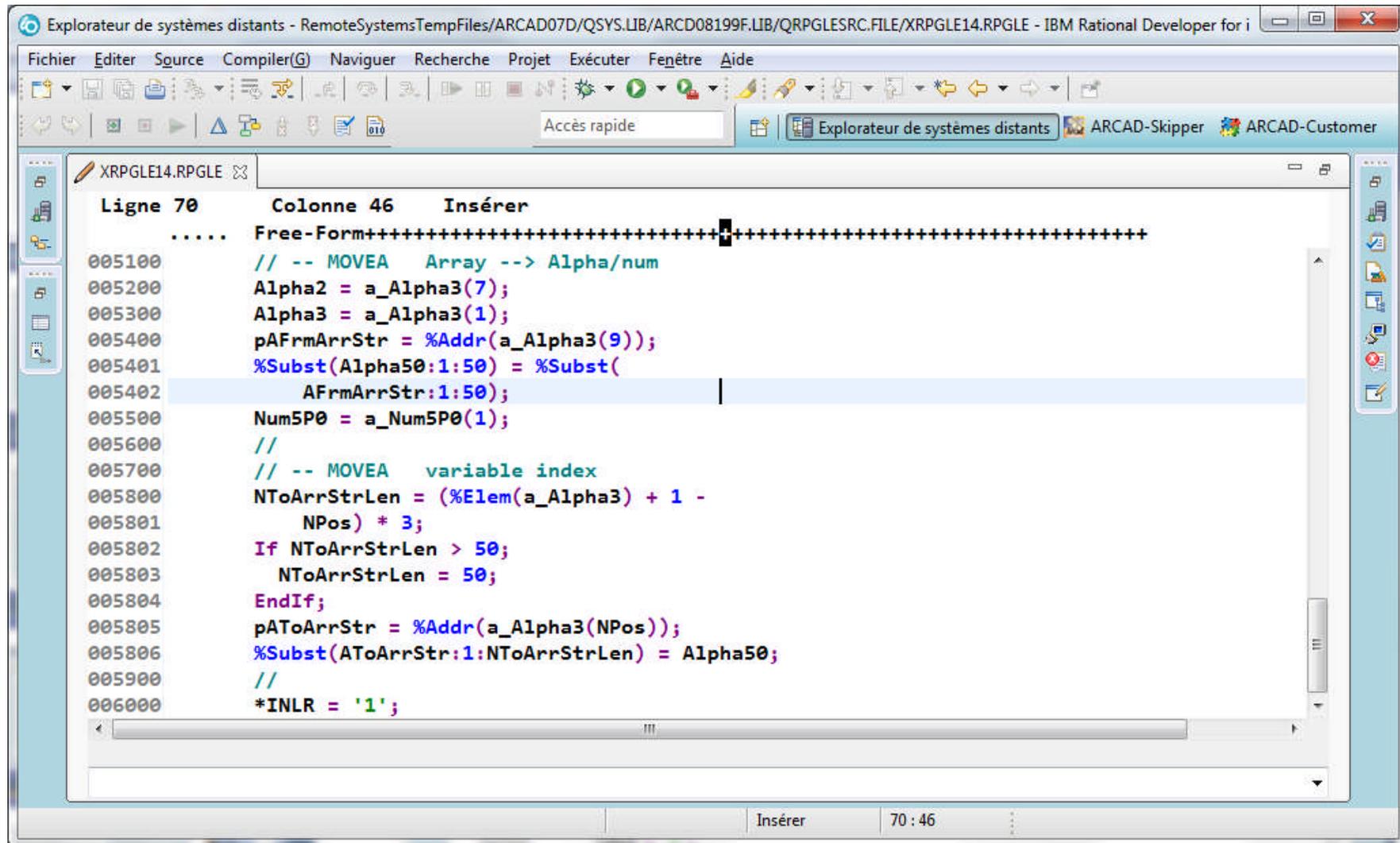


The screenshot shows the IBM Rational Developer for i interface. The main window displays the source code for XRPGL14.RPGLE. The code is as follows:

```
Ligne 56      Colonne 58      Insérer
..... Free-Form+++++++
003900      //
004000      // -- MOVEA  Array -> Array
004100      %SubArr(a_Alpha3B:1:50) = %SubArr(a_Alpha3:
004101          1:50);
004200      %SubArr(a_Alpha3B:1:50) = %SubArr(a_Alpha3:
004201          3:48);
004300      pAFrmArrStr = %Addr(a_Alpha7(4));
004301      pAToArrStr = %Addr(a_Alpha3(8));
004302      %Subst(AToArrStr:1:129)
004303          = %Subst(AFrmArrStr:1:129);
004400      //
004500      // -- MOVEA  Alpha/num -> Array
004600      %Subst(a_Alpha3(7):1:2) = Alpha2;
004700      a_Alpha3(1) = Alpha3;
004800      pAToArrStr = %Addr(a_Alpha3(9));
004801      %Subst(AToArrStr:1:50) = Alpha50;
004900      a_Num5P0(1) = Num5P0;
005000      //
```

The status bar at the bottom indicates the current cursor position: Insérer 56 : 58.

## Code opér. MOVEA (5)



The screenshot shows the IBM Rational Developer for i interface. The main window displays the source code for XRPGL14.RPGLE. The code is as follows:

```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLESRC.FILE/XRPGL14.RPGLE - IBM Rational Developer for i
Fichier  Éditer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
Accès rapide  Explorateur de systèmes distants  ARCAD-Skipper  ARCAD-Customer

XRPGL14.RPGLE
Ligne 70      Colonne 46      Insérer
..... Free-Form+++++
005100      // -- MOVEA  Array --> Alpha/num
005200      Alpha2 = a_Alpha3(7);
005300      Alpha3 = a_Alpha3(1);
005400      pAFrmArrStr = %Addr(a_Alpha3(9));
005401      %Subst(Alpha50:1:50) = %Subst(
005402      AFrmArrStr:1:50);
005500      Num5P0 = a_Num5P0(1);
005600      //
005700      // -- MOVEA  variable index
005800      NToArrStrLen = (%Elem(a_Alpha3) + 1 -
005801      NPos) * 3;
005802      If NToArrStrLen > 50;
005803      NToArrStrLen = 50;
005804      EndIf;
005805      pAToArrStr = %Addr(a_Alpha3(NPos));
005806      %Subst(AToArrStr:1:NToArrStrLen) = Alpha50;
005900      //
006000      *INLR = '1';
```

Insérer 70 : 46

# Code opér. TIME (1)

Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199G.LIB/QRPGLESRC.FILE/XRPGL15.RPGLE - IBM Rational Developer for i

Fichier Éditer Source Compiler(G) Naviguer Recherche Projet Exécuter Fenêtre Aide

XRPGL15.RPGLE

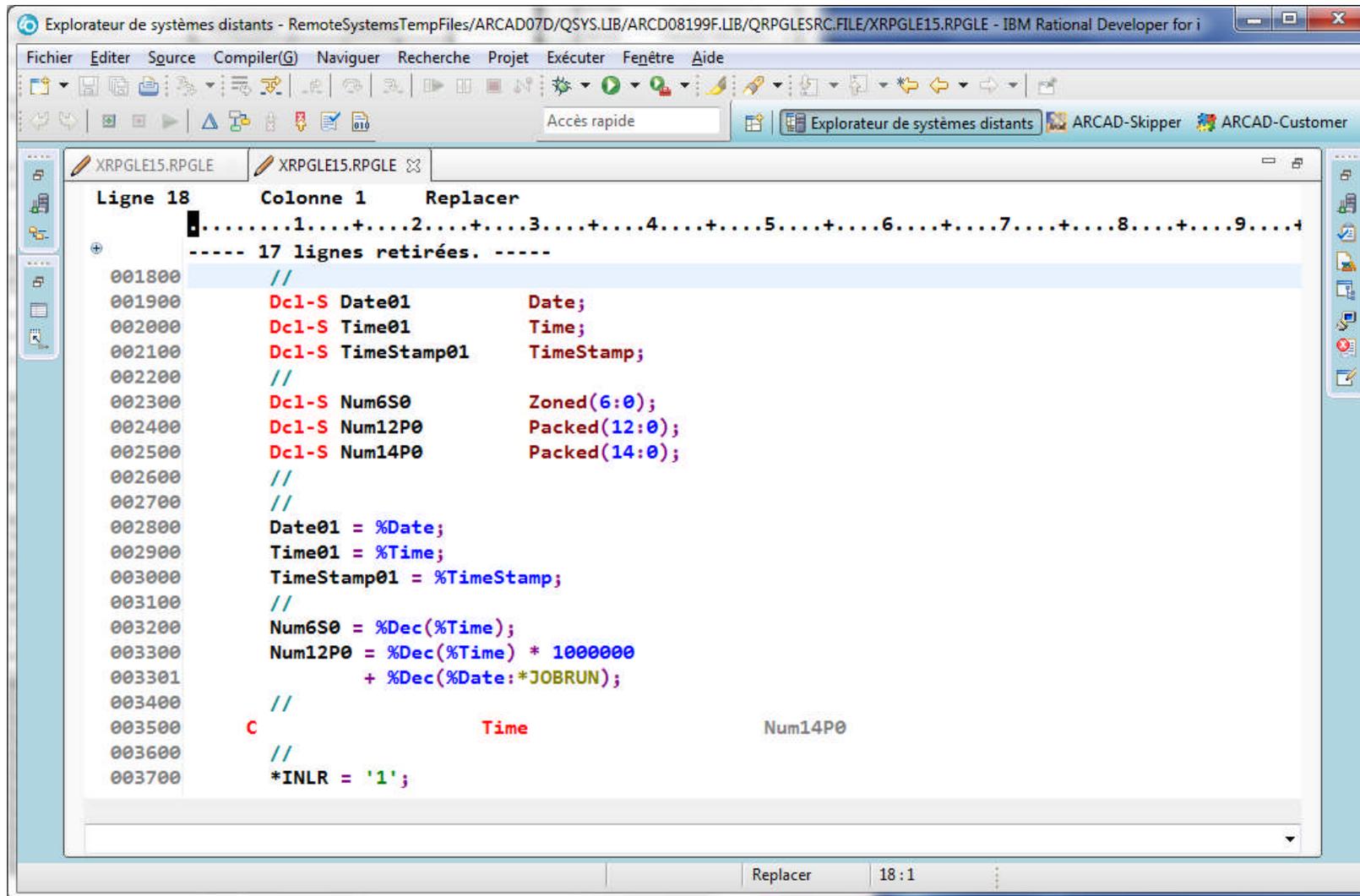
Ligne 18    Colonne 2    Insérer

```

.....1.....2.....3.....4.....5.....6.....7.....8.....9.....+
----- 17 lignes retirées. -----
001800      D*
001900      D Date01          s          D
002000      D Time01          s          T
002100      D TimeStamp01    s          Z
002200      D*
002300      D Num6S0          s          6s 0
002400      D Num12P0         s          12p 0
002500      D Num14P0         s          14p 0
002600      D*
002700      C*
002800      C              Time          Date01
002900      C              Time          Time01
003000      C              Time          TimeStamp01
003100      C*
003200      C              Time          Num6S0
003300      C              Time          Num12P0
003400      C*
003500      C              Time          Num14P0
003600      C*
003700      C              Seton          Lr
    
```

Insérer    18 : 2

## Code opér. TIME (2)



The screenshot shows the IBM Rational Developer for i interface. The main window displays a COBOL program named XRPGL15.RPGLE. The code is as follows:

```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLSRC.FILE/XRPGL15.RPGLE - IBM Rational Developer for i
Fichier  Éditer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
Accès rapide  Explorateur de systèmes distants  ARCAD-Skipper  ARCAD-Customer

XRPGL15.RPGLE  XRPGL15.RPGLE
Ligne 18  Colonne 1  Replacer
.....1.....+.....2.....+.....3.....+.....4.....+.....5.....+.....6.....+.....7.....+.....8.....+.....9.....+
----- 17 lignes retirées. -----
001800      //
001900      Dcl-S Date01          Date;
002000      Dcl-S Time01         Time;
002100      Dcl-S TimeStamp01    TimeStamp;
002200      //
002300      Dcl-S Num6S0          Zoned(6:0);
002400      Dcl-S Num12P0        Packed(12:0);
002500      Dcl-S Num14P0        Packed(14:0);
002600      //
002700      //
002800      Date01 = %Date;
002900      Time01 = %Time;
003000      TimeStamp01 = %TimeStamp;
003100      //
003200      Num6S0 = %Dec(%Time);
003300      Num12P0 = %Dec(%Time) * 1000000
003301              + %Dec(%Date:*JOB RUN);
003400      //
003500      C                      Time                      Num14P0
003600      //
003700      *INLR = '1';
```

The status bar at the bottom of the editor shows "Replacer" and "18:1".

# Codes opér. ADDDUR, SUBDUR, EXTRCT (1)

Ligne	Colonne	Insérer
001900	D Date01	s D
002000	D Date02	s D
002100	D Time01	s T
002200	D Time02	s T
002300	D*	
002400	D NDays	s 6s 0
002500	D NHours	s 6s 0
002600	D NMonth	s 3s 0
002700	D ASecond	s 5a
002800	C*	
002900	C*---	ADDDUR / SUBDUR
003000	C	AddDur 7 :*m Date01
003100	C Date01	AddDur(e) Ndays :*days Date02
003200	C	SubDur 7 :*m Date01
003300	C Date01	SubDur Ndays :*days Date02 43
003400	C Time01	SubDur Time02 NHours :*h
003500	C*	
003600	C*---	EXTRCT
003700	C	Extrct Date01:*monthsNMonth
003800	C	Extrct(e) Time01:*s ASecond
003900	C*	
004000	C	Seton Lr

# Codes opér. ADDDUR, SUBDUR, EXTRCT (2)

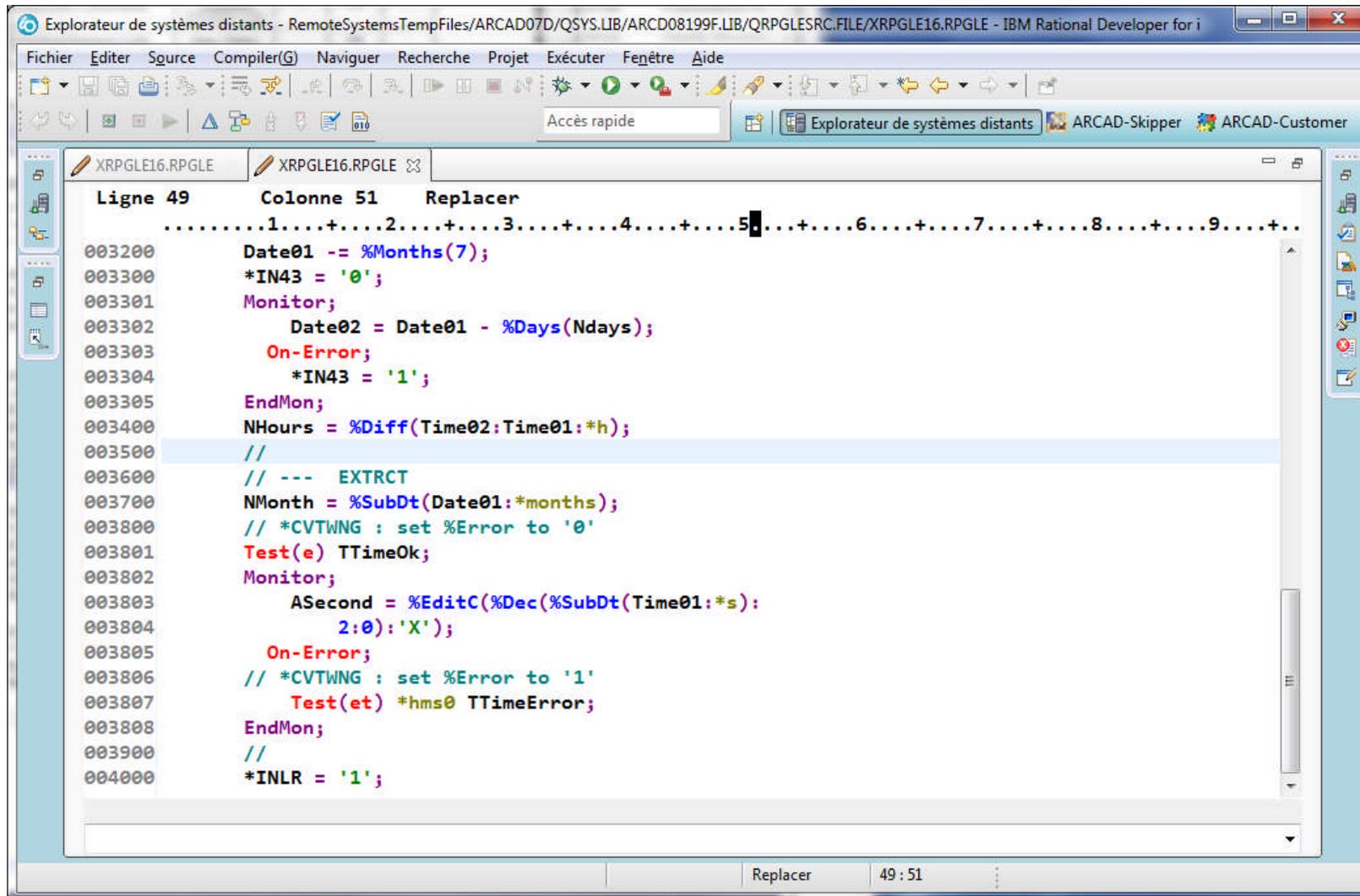
The screenshot displays the IBM Rational Developer for i interface. The main window shows a COBOL program with the following code:

```

Ligne 30      Colonne 1      Replacer
.....1.....2.....3.....4.....5.....6.....7.....8.....9.....+
001900      Dcl-S Date01      Date;
002000      Dcl-S Date02      Date;
002100      Dcl-S Time01      Time;
002200      Dcl-S Time02      Time;
002300      //
002400      Dcl-S NDays      Zoned(6:0);
002500      Dcl-S NHours      Zoned(6:0);
002600      Dcl-S NMonth      Zoned(3:0);
002700      Dcl-S ASecond      Char(5);
002701      Dcl-S TTimeOk      Time(*Iso)      inz(T'00.00.00');
002702      Dcl-S TTimeError      Char(6)      inz('888888');
002800      //
002900      // --- ADDDUR / SUBDUR
003000      Date01 += %Months(7);
003100      // *CVTWNG : set %Error to '0'
003101      Test(e) TTimeOk;
003102      Monitor;
003103          Date02 = Date01 + %Days(Ndays);
003104      On-Error;
003105      // *CVTWNG : set %Error to '1'
003106      Test(et) *hms0 TTimeError;
003107      EndMon;
  
```

The status bar at the bottom of the editor shows "Replacer" and "30 : 1".

# Codes opér. ADDDUR, SUBDUR, EXTRCT (3)



The screenshot shows the IBM Rational Developer for i interface. The main window displays a COBOL program with the following code:

```
.....1.....2.....3.....4.....5.....6.....7.....8.....9.....+
003200      Date01 -= %Months(7);
003300      *IN43 = '0';
003301      Monitor;
003302      Date02 = Date01 - %Days(Ndays);
003303      On-Error;
003304      *IN43 = '1';
003305      EndMon;
003400      NHours = %Diff(Time02:Time01:*h);
003500      //
003600      // --- EXTRCT
003700      NMonth = %SubDt(Date01:*months);
003800      // *CVTWNG : set %Error to '0'
003801      Test(e) TTimeOk;
003802      Monitor;
003803      ASecond = %EditC(%Dec(%SubDt(Time01:*s):
003804      2:0):'X');
003805      On-Error;
003806      // *CVTWNG : set %Error to '1'
003807      Test(et) *hms0 TTimeError;
003808      EndMon;
003900      //
004000      *INLR = '1';
```

The status bar at the bottom of the editor shows "Replacer" and "49 : 51".

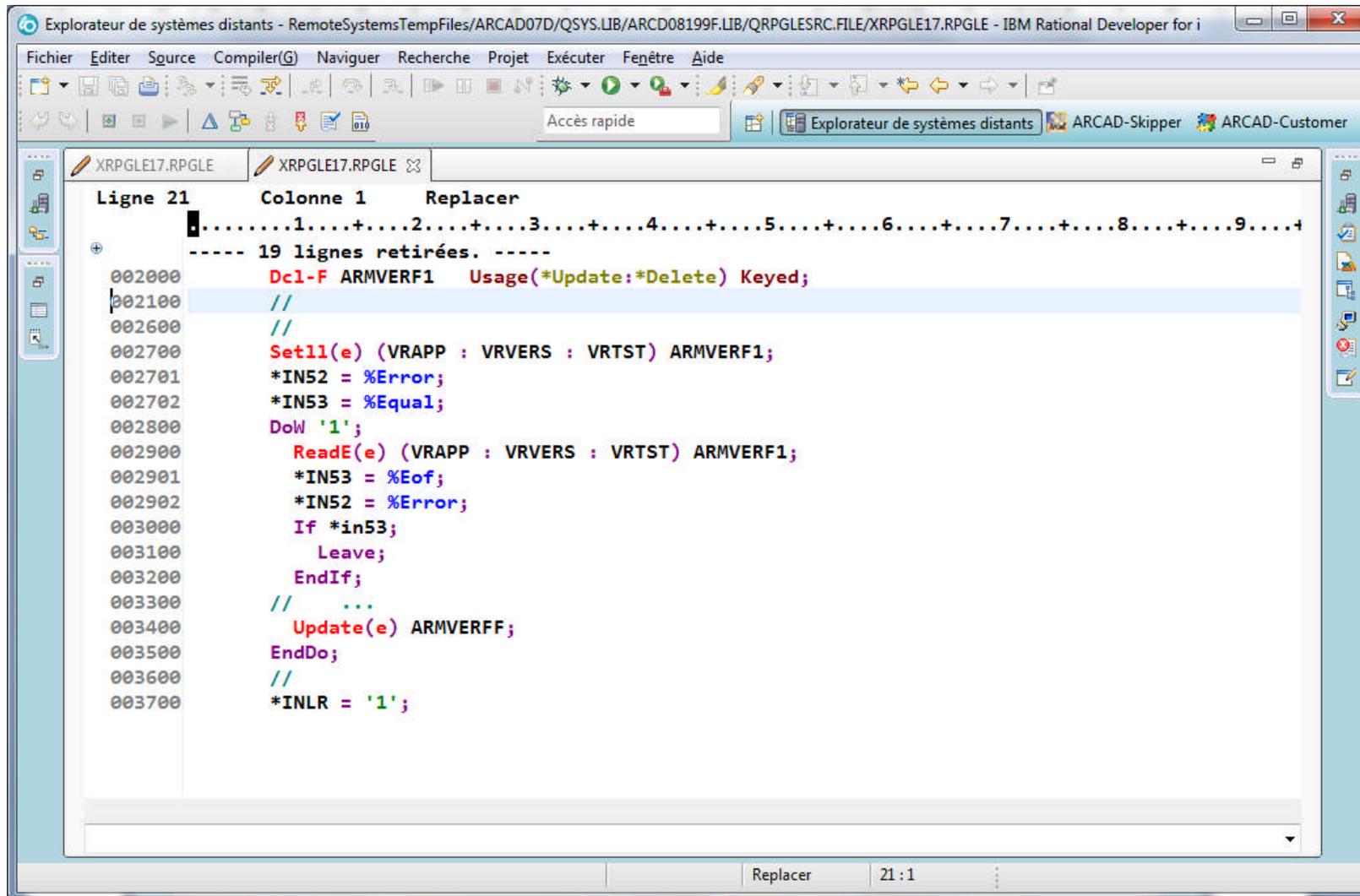
# Codes opér. de fichiers + KLIST (1)

The screenshot shows the IBM Rational Developer for i interface. The main window displays the REXX code for file operations and KLIST. The code is as follows:

```

Ligne 19      Colonne 1      Replacer
.....1.....+.....2.....+.....3.....+.....4.....+.....5.....+.....6.....+.....7.....+.....8.....+.....9.....+
----- 18 lignes retirées. -----
001900      F*
002000      FARMVERF1  UF  E          K DISK
002100      C*
002200      C          KVER          KLIST
002300      C          KFLD          VRAPP
002400      C          KFLD          VRVERS
002500      C          KFLD          VRTST
002600      C*
002700      C          KVER          Set11      ARMVERF1      5253
002800      C          Do          *Hiva1
002900      C          KVER          Reade      ARMVERF1      5253
003000      C          If          *in53
003100      C          Leave
003200      C          EndIf
003300      C*          ...
003400      C          Update(e) ARMVERFF
003500      C          EndDo
003600      C*
003700      C          Seton          Lr
    
```

## Codes opér. de fichiers + KLIST (2)



The screenshot shows the IBM Rational Developer for i interface. The main window displays a COBOL program named XRPGL17.RPGLE. The editor shows the following code:

```
Ligne 21      Colonne 1      Replacer
.....1.....+.....2.....+.....3.....+.....4.....+.....5.....+.....6.....+.....7.....+.....8.....+.....9.....+
----- 19 lignes retirées. -----
002000      Dcl-F ARMVERF1      Usage(*Update:*Delete) Keyed;
002100      //
002600      //
002700      Set11(e) (VRAPP : VRVERS : VRTST) ARMVERF1;
002701      *IN52 = %Error;
002702      *IN53 = %Equal;
002800      Dow '1';
002900      ReadE(e) (VRAPP : VRVERS : VRTST) ARMVERF1;
002901      *IN53 = %Eof;
002902      *IN52 = %Error;
003000      If *in53;
003100          Leave;
003200      EndIf;
003300      // ...
003400      Update(e) ARMVERFF;
003500      EndDo;
003600      //
003700      *INLR = '1';
```

The status bar at the bottom of the editor shows "Replacer" and "21 : 1".

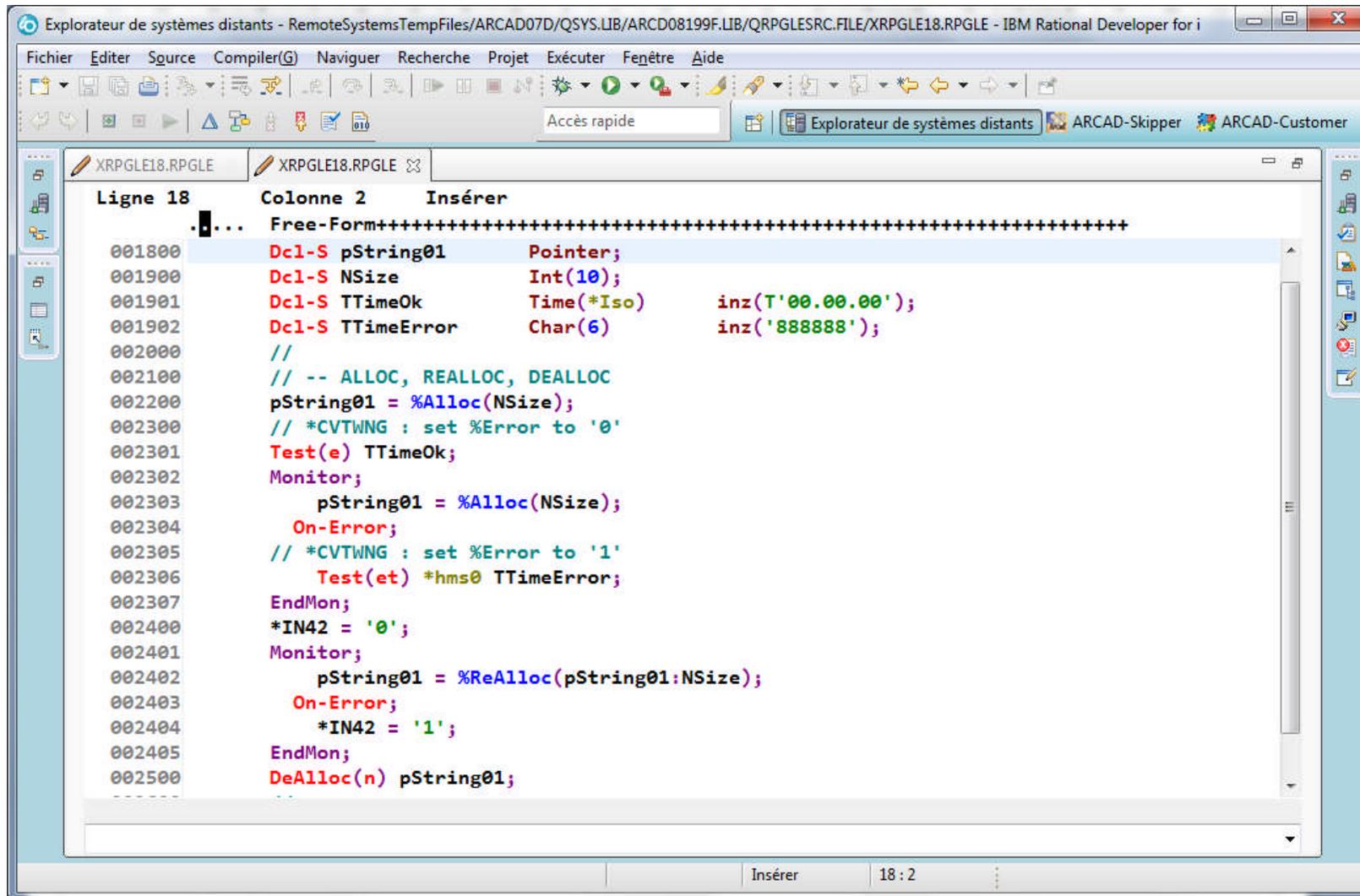
# Codes opér. ALLOC, REALLOC, DEALLOC (1)

The screenshot shows the IBM Rational Developer for i interface. The main window displays the source code for XRPGL18.RPGLE. The code is in RPG format and includes several data declarations and operations. The operations section is highlighted, showing the use of ALLOC, REALLOC, and DEALLOC.

```

Ligne 24      Colonne 15      Insérer
.....CL0N01Facor1+++++Opcode(E)+Factor2+++++Result+++++Len++D+HiLoEq....Comments+++++
----- 17 lignes retirées. -----
001800      D pString01      s          *
001900      D NSize        s          10i 0
002000      D*
002100      C*-- ALLOC, REALLOC, DEALLOC
002200      C              Alloc      NSize      pString01
002300      C              Alloc(e)  NSize      pString01
002400      C              ReAlloc   NSize      pString01      42
002500      C              DeAlloc(n)      pString01
002600      C*
002700      C              Seton          Lr
    
```

# Codes opér. ALLOC, REALLOC, DEALLOC (2)



The screenshot displays the IBM Rational Developer for i interface. The main window shows the source code for the file XRPGL18.RPGLE. The code is in Free-Form RPGLE and includes several lines demonstrating memory allocation and deallocation operations. The code is as follows:

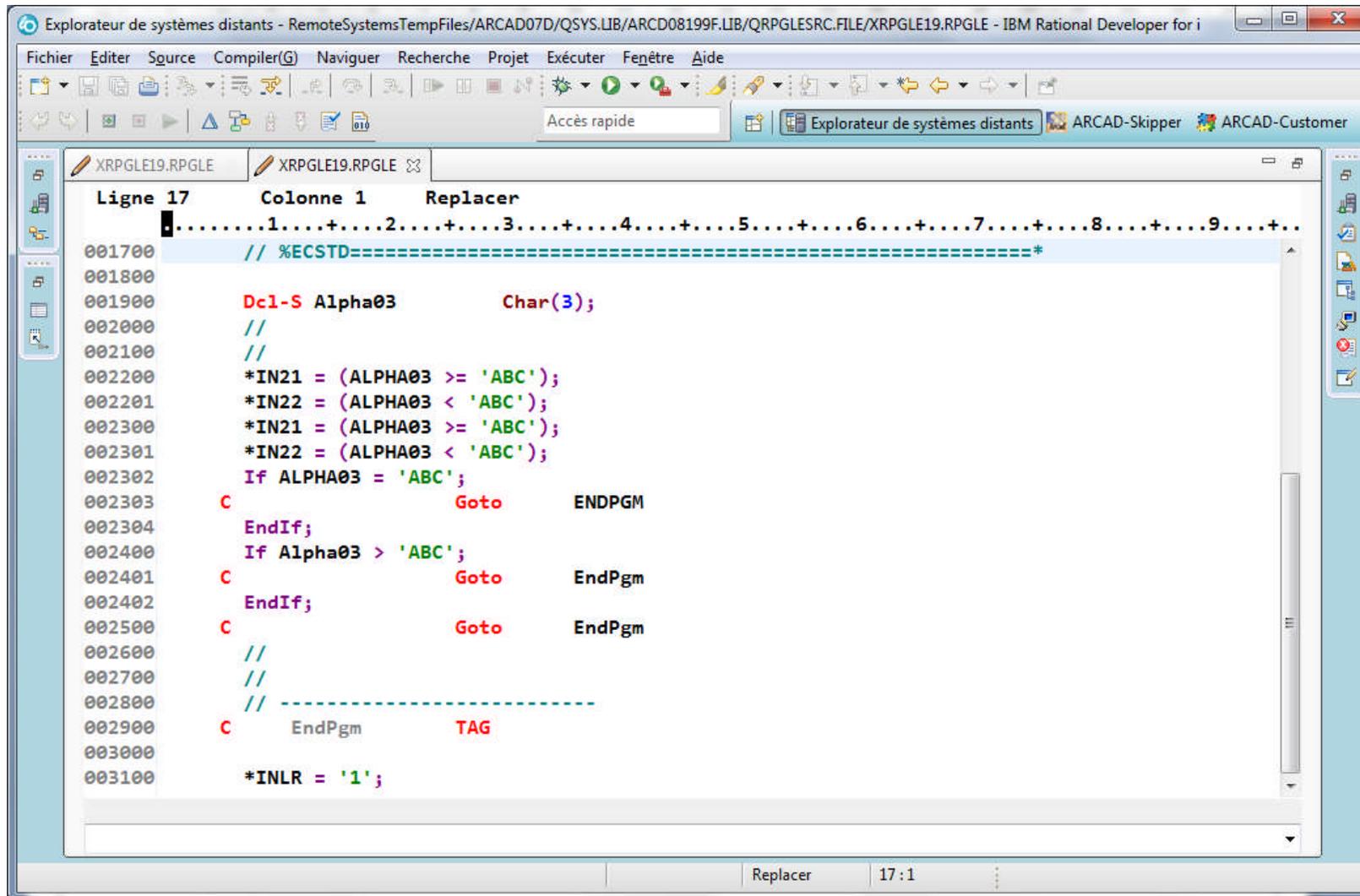
```
Ligne 18      Colonne 2      Insérer
... Free-Form+++++
001800      Dcl-S pString01      Pointer;
001900      Dcl-S NSize          Int(10);
001901      Dcl-S TTimeOk        Time(*Iso)      inz(T'00.00.00');
001902      Dcl-S TTimeError     Char(6)         inz('888888');
002000      //
002100      // -- ALLOC, REALLOC, DEALLOC
002200      pString01 = %Alloc(NSize);
002300      // *CVTWNG : set %Error to '0'
002301      Test(e) TTimeOk;
002302      Monitor;
002303          pString01 = %Alloc(NSize);
002304          On-Error;
002305      // *CVTWNG : set %Error to '1'
002306          Test(et) *hms0 TTimeError;
002307      EndMon;
002400      *IN42 = '0';
002401      Monitor;
002402          pString01 = %ReAlloc(pString01:NSize);
002403          On-Error;
002404          *IN42 = '1';
002405      EndMon;
002500      DeAlloc(n) pString01;
```

# Codes opér. CABxx (1)

```

Explorateur de systèmes distants - RemoteSystemsTempFiles\ARCAD07D\QSYS.LIB\ARCD08199G.LIB\QRPGLSRC.FILE\XRPGL19.RPGLE - IBM Rational Developer for i
Fichier  Éditer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
-----
XRPGL19.RPGLE
Ligne 18      Colonne 1      Insérer
.....DName+++++++ETDsFrom+++To/L+++IDc.Keywords+++++++Comments+++++
----- 17 lignes retirées. -----
001800      D
001900      D  Alpha03      s              3A
002000      D*
002100      D*
002200      C  Alpha03      Cabeq      'ABC'              21221
002300      C  Alpha03      CABEQ      'ABC'      EndPgm            21221
002400      C  Alpha03      CABGt      'ABC'      EndPgm
002500      C  Alpha03      CAB       'ABC'      EndPgm
002600      C*
002700      C*
002800      C*-----
002900      C  EndPgm      TAG
003000      C
003100      C              Seton              Lr
    
```

# Codes opér. CABxx (2) avec GOTO

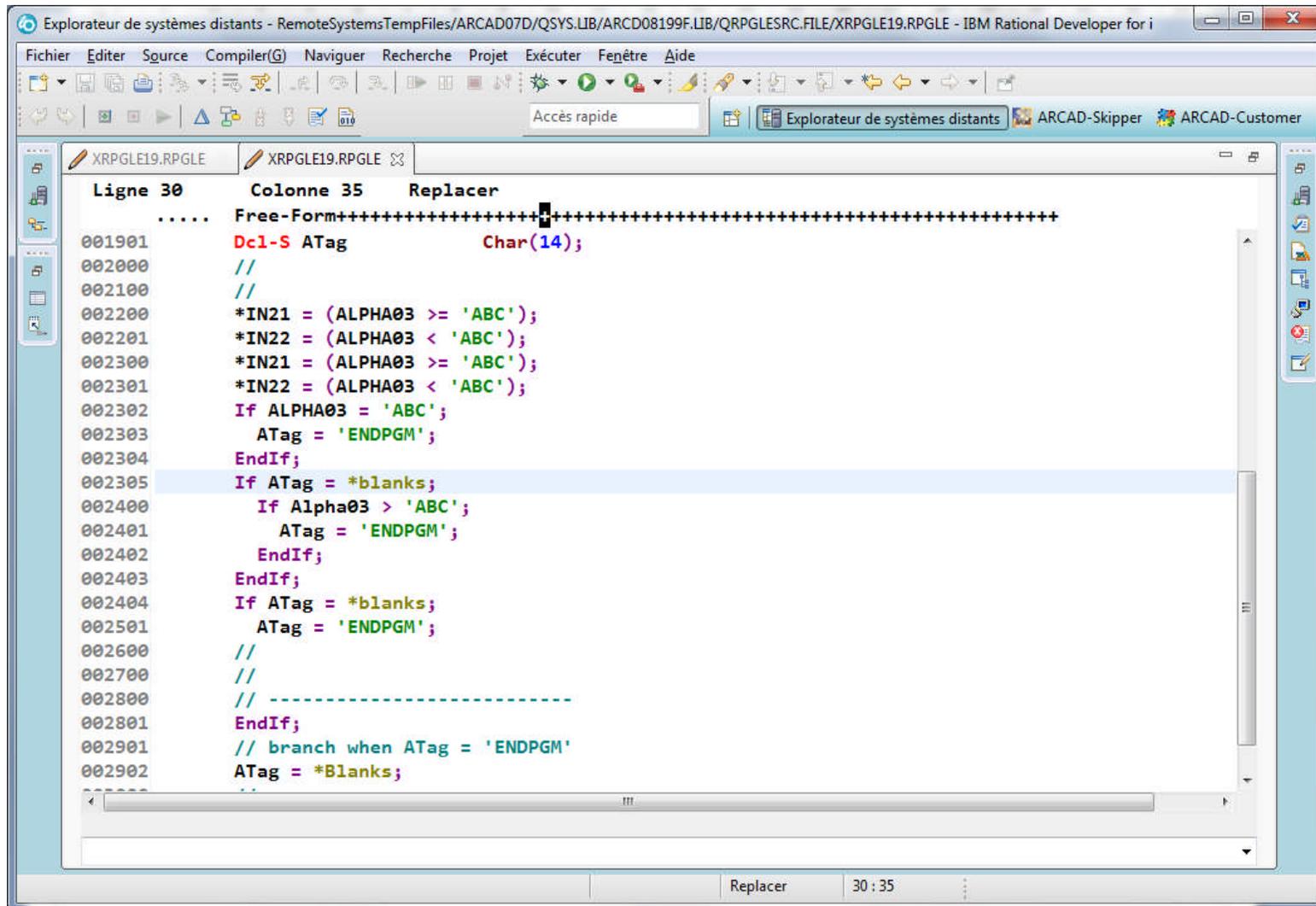


The screenshot displays the IBM Rational Developer for i interface. The main window shows a COBOL program named XRPGL19.RPGLE. The code is displayed in a grid format with line numbers on the left and column numbers at the top. The code includes several conditional statements and GOTO statements.

```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLESRC.FILE/XRPGL19.RPGLE - IBM Rational Developer for i
Fichier  Éditer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
Accès rapide  Explorateur de systèmes distants  ARCAD-Skipper  ARCAD-Customer

XRPGL19.RPGLE  XRPGL19.RPGLE
Ligne 17  Colonne 1  Replacer
.....1.....2.....3.....4.....5.....6.....7.....8.....9.....+
001700  // %ECSTD=====*
001800
001900  Dcl-S Alpha03          Char(3);
002000  //
002100  //
002200  *IN21 = (ALPHA03 >= 'ABC');
002201  *IN22 = (ALPHA03 < 'ABC');
002300  *IN21 = (ALPHA03 >= 'ABC');
002301  *IN22 = (ALPHA03 < 'ABC');
002302  If ALPHA03 = 'ABC';
002303  C          Goto      ENDPGM
002304  EndIf;
002400  If Alpha03 > 'ABC';
002401  C          Goto      EndPgm
002402  EndIf;
002500  C          Goto      EndPgm
002600  //
002700  //
002800  // -----
002900  C          EndPgm    TAG
003000
003100  *INLR = '1';
```

# Codes opér. CABxx (3) sans GOTO



The screenshot shows the IBM Rational Developer for i interface. The main window displays a COBOL program with a replace operation. The replace operation is defined as follows:

```
..... Free-Form+++++-----
```

```
001901 Dc1-S ATag Char(14);
```

```
002000 //
```

```
002100 //
```

```
002200 *IN21 = (ALPHA03 >= 'ABC');
```

```
002201 *IN22 = (ALPHA03 < 'ABC');
```

```
002300 *IN21 = (ALPHA03 >= 'ABC');
```

```
002301 *IN22 = (ALPHA03 < 'ABC');
```

```
002302 If ALPHA03 = 'ABC';
```

```
002303     ATag = 'ENDPGM';
```

```
002304 EndIf;
```

```
002305 If ATag = *blanks;
```

```
002400     If Alpha03 > 'ABC';
```

```
002401         ATag = 'ENDPGM';
```

```
002402     EndIf;
```

```
002403 EndIf;
```

```
002404 If ATag = *blanks;
```

```
002501     ATag = 'ENDPGM';
```

```
002600 //
```

```
002700 //
```

```
002800 // -----
```

```
002801 EndIf;
```

```
002901 // branch when ATag = 'ENDPGM'
```

```
002902 ATag = *Blanks;
```

```
.....
```

The status bar at the bottom of the window shows "Replacer" and "30 : 35".

# Codes opér. CASxx (1)

Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199G.LIB/QRPGLESRC.FILE/XRPGLE20.RPGLE - IBM Rational Developer for i

Fichier Editer Source Compiler(G) Naviguer Recherche Projet Exécuter Fenêtre Aide

XRPGLE20.RPGLE

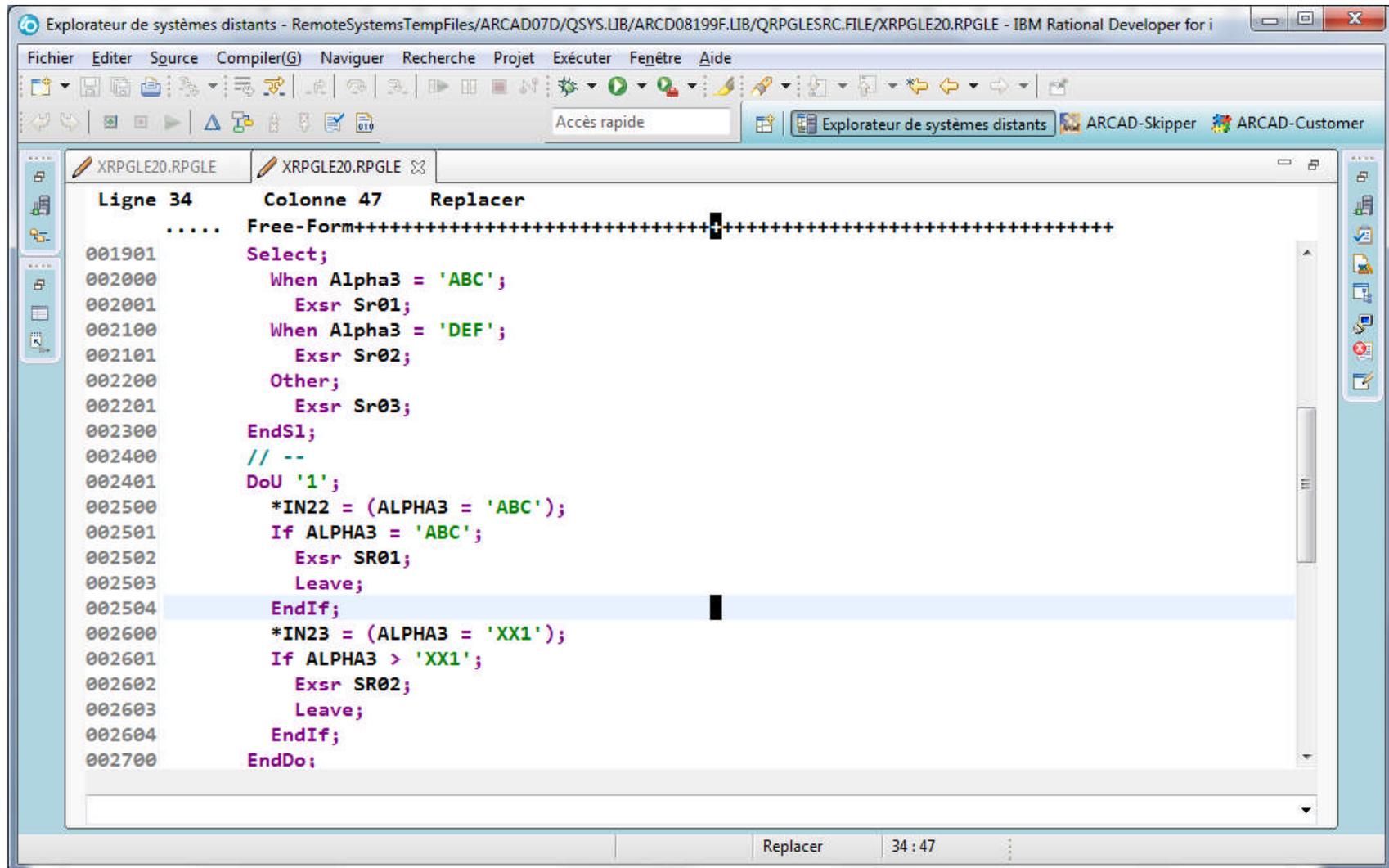
Ligne 36    Colonne 61    Insérer

```

.....CL0N01Factor1+++++Opcode(E)+Factor2+++++Result+++++Len++D+HiLoEq....Comments+++++
----- 17 lignes retirées. -----
001800      D Alpha3          s          3a
001900      C*--
002000      C      Alpha3      Caseq      'ABC'      Sr01
002100      C      Alpha3      Caseq      'DEF'      Sr02
002200      C                               Cas          Sr03
002300      C                               EndCs
002400      C*--
002500      C      Alpha3      Caseq      'ABC'      Sr01          22
002600      C      Alpha3      CasGt      'XX1'      Sr02          23
002700      C                               End
002800      C*--
002900      C      Alpha3      Caseq      'ABC'      Sr01
003000      C      23Alpha3    Caseq      'DEF'      Sr02          21
003100      C                               End
003200      C*
003300      C                               Seton          Lr
003400      C      Sr01        Begsr
003500      C                               Endsr
003600      C      Sr02        Begsr
003700      C                               Endsr
    
```

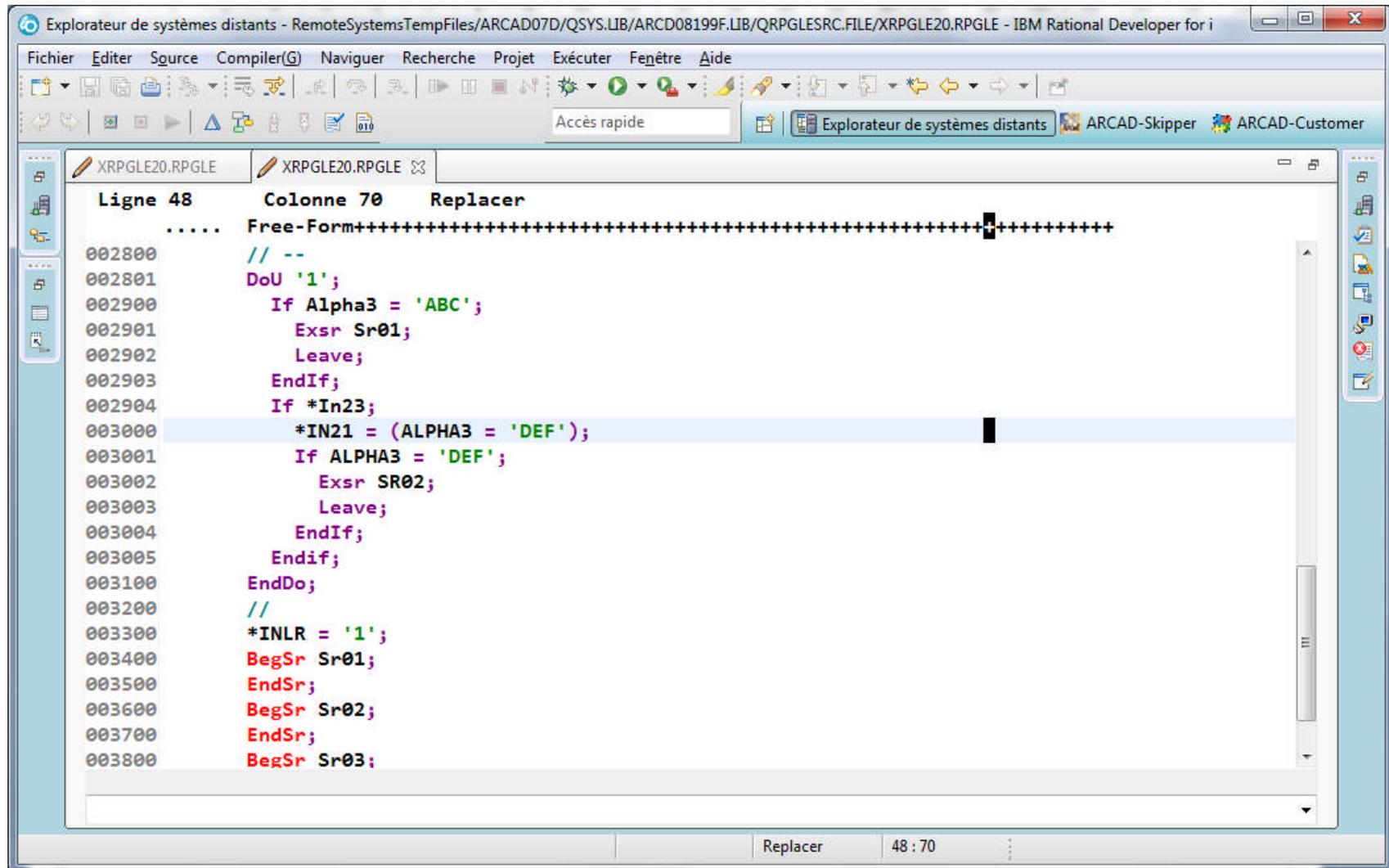
Insérer    36 : 61

## Codes opér. CASxx (2)



```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLESRC.FILE/XRPGLE20.RPGLE - IBM Rational Developer for i
Fichier  Editer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
XRPGL20.RPGLE  XRPGL20.RPGLE
Ligne 34  Colonne 47  Replacer
..... Free-Form+++++
001901  Select;
002000      When Alpha3 = 'ABC';
002001          Exsr Sr01;
002100      When Alpha3 = 'DEF';
002101          Exsr Sr02;
002200      Other;
002201          Exsr Sr03;
002300  EndS1;
002400  // --
002401  DoU '1';
002500      *IN22 = (ALPHA3 = 'ABC');
002501      If ALPHA3 = 'ABC';
002502          Exsr SR01;
002503          Leave;
002504      EndIf;
002600      *IN23 = (ALPHA3 = 'XX1');
002601      If ALPHA3 > 'XX1';
002602          Exsr SR02;
002603          Leave;
002604      EndIf;
002700  EndDo;
```

## Codes opér. CASxx (3)



The screenshot displays the IBM Rational Developer for i interface. The main window shows a COBOL program named XRPGL20.RPGLE. The editor is in 'Replacer' (Replace) mode, with a cursor at line 48, column 70. The code is as follows:

```
Ligne 48      Colonne 70      Replacer
..... Free-Form+++++
002800      // --
002801      DoU '1';
002900          If Alpha3 = 'ABC';
002901              Exsr Sr01;
002902              Leave;
002903          EndIf;
002904          If *In23;
003000              *IN21 = (ALPHA3 = 'DEF');
003001              If ALPHA3 = 'DEF';
003002                  Exsr SR02;
003003                  Leave;
003004              EndIf;
003005          Endif;
003100      EndDo;
003200      //
003300      *INLR = '1';
003400      BegSr Sr01;
003500      EndSr;
003600      BegSr Sr02;
003700      EndSr;
003800      BegSr Sr03;
```

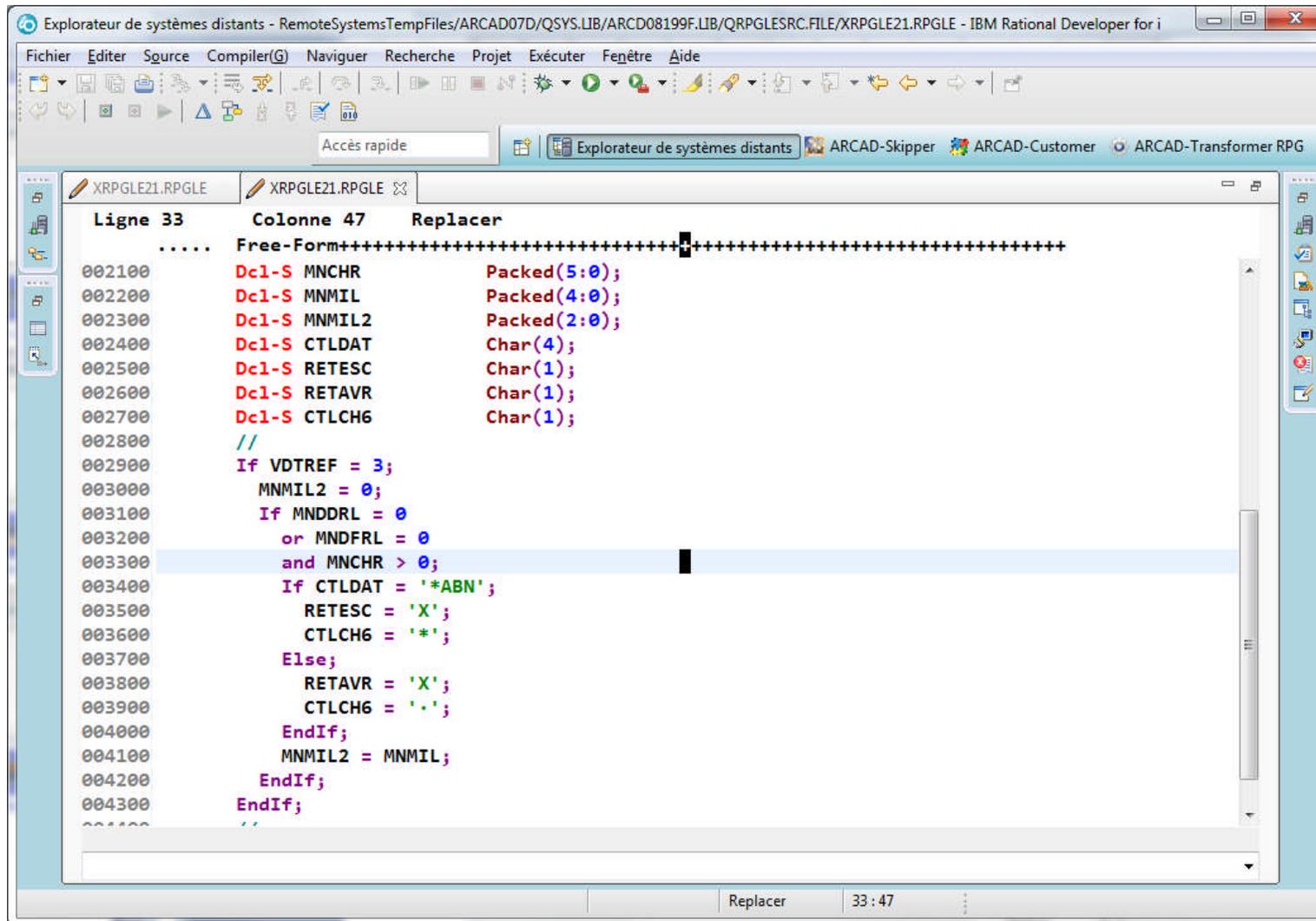
The status bar at the bottom of the editor shows 'Replacer' and '48 : 70'.

# Codes opér. DOUxx, DOWxx, Ifxx, WHENxx, ANDxx, ORxx (1)

The screenshot shows the IBM Rational Developer for i interface. The main window displays the source code of an RPGLE program (XRPGL21.RPGL). The code is organized into a table with columns for line numbers, operation codes, and their parameters. The operations include data declarations (D), constants (C), and conditional operations (IF, MOVE, Z-ADD, ANDGT, ELSE, END).

Ligne	Colonne 1	Replacer			
002100	D MNCHR	s	5	0	
002200	D MNMIL	s	4	0	
002300	D MNMIL2	s	2	0	
002400	D CTLDAT	s	4		
002500	D RETESC	s	1		
002600	D RETAVR	s	1		
002700	D CTLCH6	s	1		
002800	C*				
002900	C VDTREF	IFEQ	3		
003000	C	Z-ADD	0		MNMIL2
003100	C MNDDRL	IFEQ	0		
003200	C MNDFRL	OREQ	0		
003300	C MNCHR	ANDGT	0		
003400	C CTLDAT	IFEQ	'*ABN'		
003500	C	MOVE	'X'		RETESC
003600	C	MOVE	'*'		CTLCH6
003700	C	ELSE			
003800	C	MOVE	'X'		RETAVR
003900	C	MOVE	'.'		CTLCH6
004000	C	END			
004100	C	Z-ADD	MNMIL		MNMIL2
004200	C	END			
004300	C	END			

## Codes opér. DOUxx, DOWxx, Ifxx, WHENxx, ANDxx, ORxx (2)



The screenshot displays the IBM Rational Developer for i interface. The main window shows the source code of an RPGLE program named XRPGL21.RPGL. The code is displayed in a table-like format with columns for line number, column number, and the code text. The code includes several declarations and conditional logic blocks.

```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLSRC.FILE/XRPGL21.RPGL - IBM Rational Developer for i
Fichier Editer Source Compiler(N) Naviguer Recherche Projet Exécuter Fenêtre Aide
Accès rapide Explorateur de systèmes distants ARCAD-Skipper ARCAD-Customer ARCAD-Transformer RPG

XRPGL21.RPGL XRPGL21.RPGL
Ligne 33 Colonne 47 Replacer
..... Free-Form+++++
002100 Dcl-S MNCHR Packed(5:0);
002200 Dcl-S MNMIL Packed(4:0);
002300 Dcl-S MNMIL2 Packed(2:0);
002400 Dcl-S CTLDAT Char(4);
002500 Dcl-S RETESC Char(1);
002600 Dcl-S RETAVR Char(1);
002700 Dcl-S CTLCH6 Char(1);
002800 //
002900 If VDTREF = 3;
003000     MNMIL2 = 0;
003100     If MNDDR1 = 0
003200         or MNDFRL = 0
003300         and MNCHR > 0;
003400         If CTLDAT = '*ABN';
003500             RETESC = 'X';
003600             CTLCH6 = '*';
003700         Else;
003800             RETAVR = 'X';
003900             CTLCH6 = '.';
004000         EndIf;
004100     MNMIL2 = MNMIL;
004200     EndIf;
004300 EndIf;
.....
```

# Code opér. DO (1)

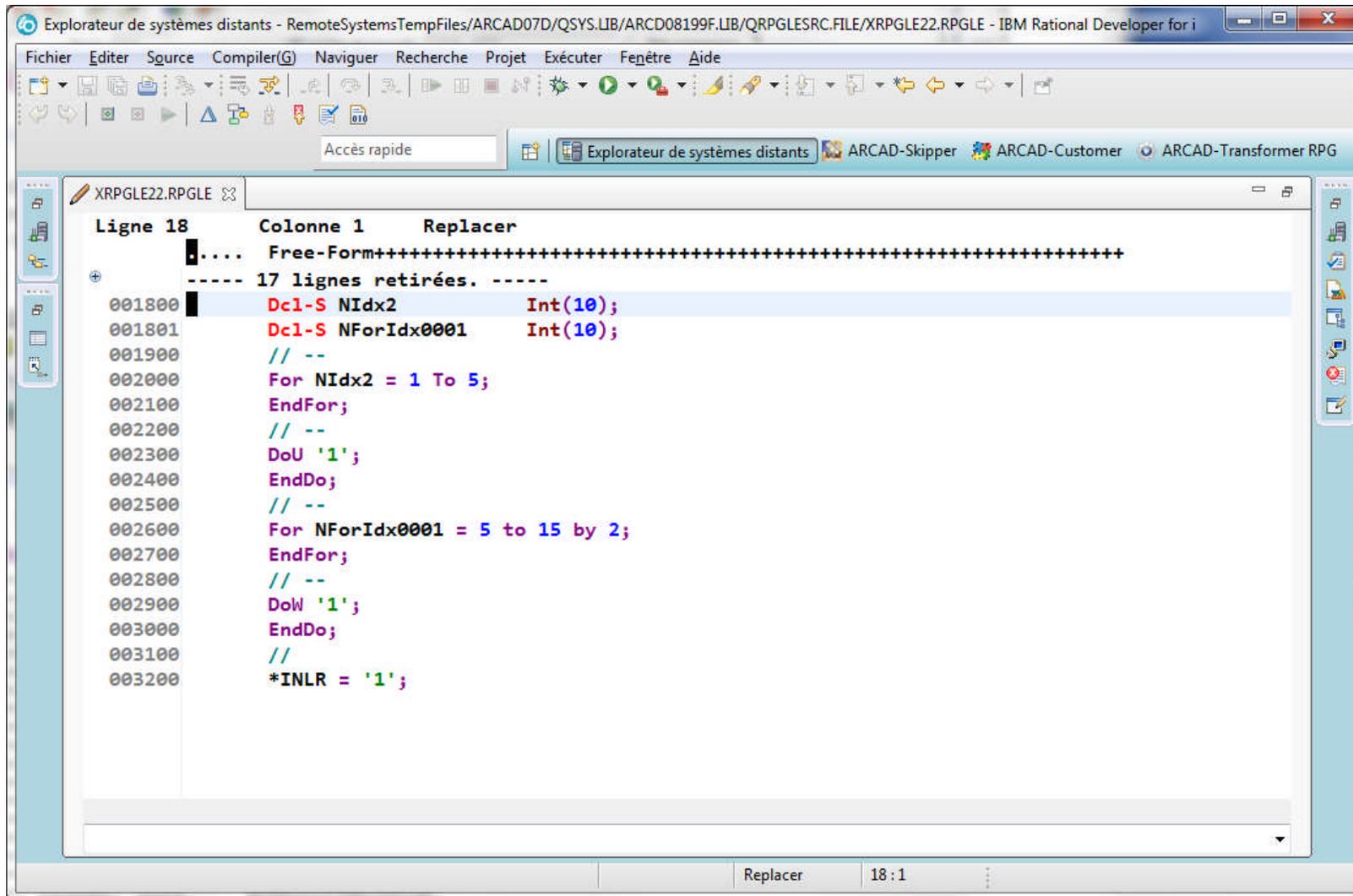
The screenshot shows the IBM Rational Developer for i interface. The main window displays the source code for file XRPGL22.RPGLE. The code includes several DO loops and a SETON statement. The current cursor position is at line 32, column 62.

```

Ligne 32      Colonne 62      Insérer
.....CL0N01Factor1+++++Opcode(E)+Factor2+++++Result+++++Len++D+HiLoEq...Comments+++++
----- 17 lignes retirées. -----
001800      D NIdx2              s              10i 0
001900      C*--
002000      C                      Do          5          NIdx2
002100      C                      EndDo
002200      C*--
002300      C                      Do          1
002400      C                      EndDo
002500      C*--
002600      C          5          Do          15
002700      C                      EndDo          2
002800      C*--
002900      C                      Do          *hival
003000      C                      EndDo
003100      C*
003200      C                      Seton              Lr
    
```

At the bottom of the window, the status bar shows "Insérer" and "32 : 62".

## Code opér. DO (2)



Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLESRC.FILE/XRPGL22.RPGLE - IBM Rational Developer for i

Fichier Éditer Source Compiler(G) Naviguer Recherche Projet Exécuter Fenêtre Aide

Accès rapide Explorateur de systèmes distants ARCAD-Skipper ARCAD-Customer ARCAD-Transformer RPG

XRPGL22.RPGLE

Ligne	Colonne	Replacer
18	1	.... Free-Form+++++
19	1	----- 17 lignes retirées. -----
001800	1	Dcl-S NIdx2 Int(10);
001801	1	Dcl-S NForIdx0001 Int(10);
001900	1	// --
002000	1	For NIdx2 = 1 To 5;
002100	1	EndFor;
002200	1	// --
002300	1	DoU '1';
002400	1	EndDo;
002500	1	// --
002600	1	For NForIdx0001 = 5 to 15 by 2;
002700	1	EndFor;
002800	1	// --
002900	1	DoW '1';
003000	1	EndDo;
003100	1	//
003200	1	*INLR = '1';

Replacer 18 : 1

# Code opér. \*ENTRY PLIST (1)

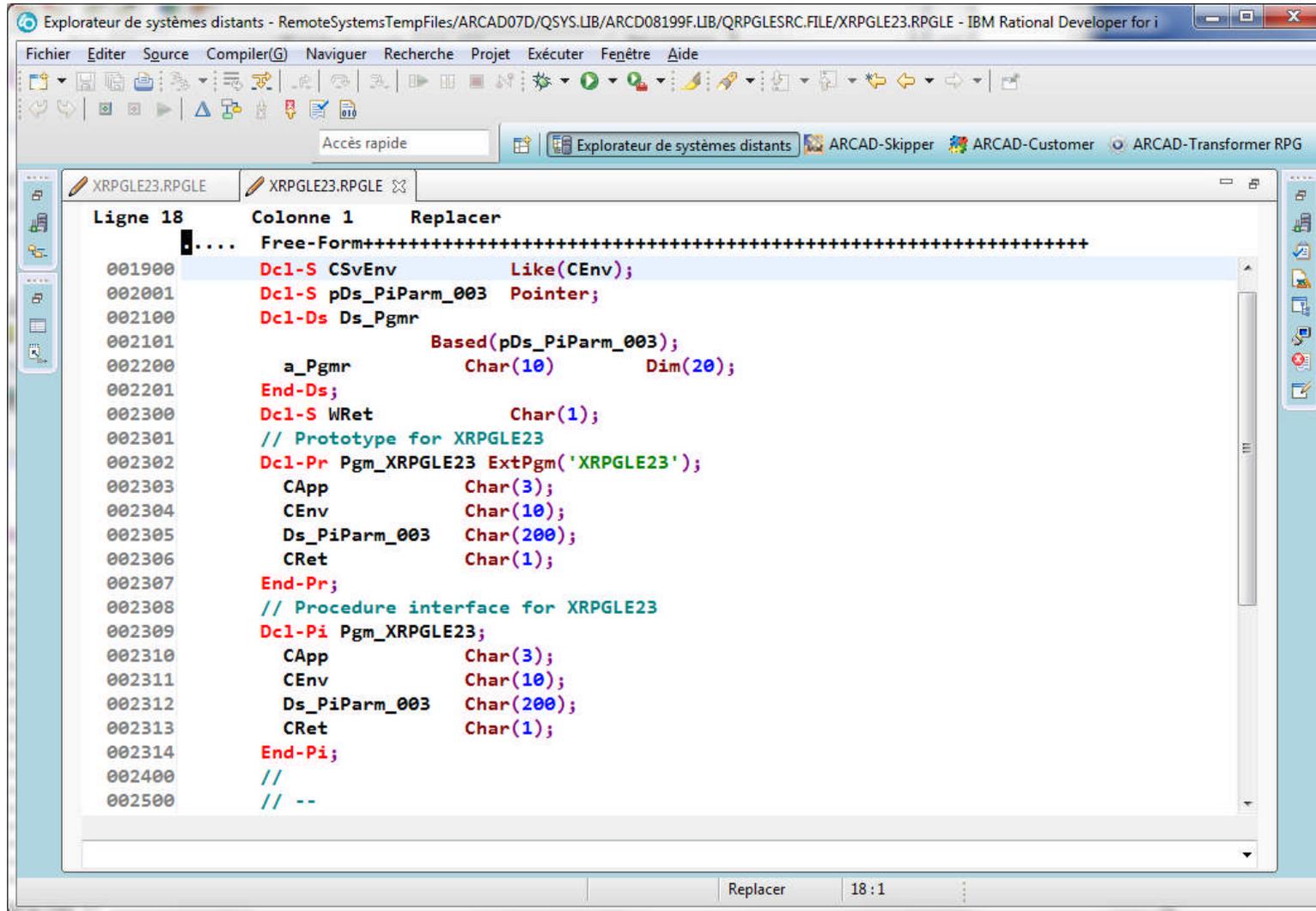
The screenshot shows the IBM Rational Developer for i interface. The main window displays a COBOL program with the following code:

```

Ligne 18      Colonne 1      Insérer
...DName+++++ETDsFrom+++To/L+++IDc.Keywords+++++Comments+++++
001800      D CEnv              s              10a
001900      D CSvEnv         s
002000      D CRet          s              1a          Like(CEnv)
002100      D Ds_Pgmr       Ds
002200      D   a_Pgmr      10a          Dim(20)
002300      D WRet         s              1a
002400      D*
002500      C*--
002600      C   *Entry      PLIST
002700      C               Parm          CApp          3
002800      C   CSvEnv    Parm          CEnv
002900      C               Parm          Ds_Pgmr
003000      C               Parm          WRet          CRet
003100      C*
003200      C               Move        '0'          WRet
003300      C*...
003400      C               Eval        *inlr = '1'
003500      C*
003600      C   Sr01       Bgsr
003700      C* ...
003800      C               Move        '1'          WRet
003900      C               Return
004000      C               EndSr
    
```

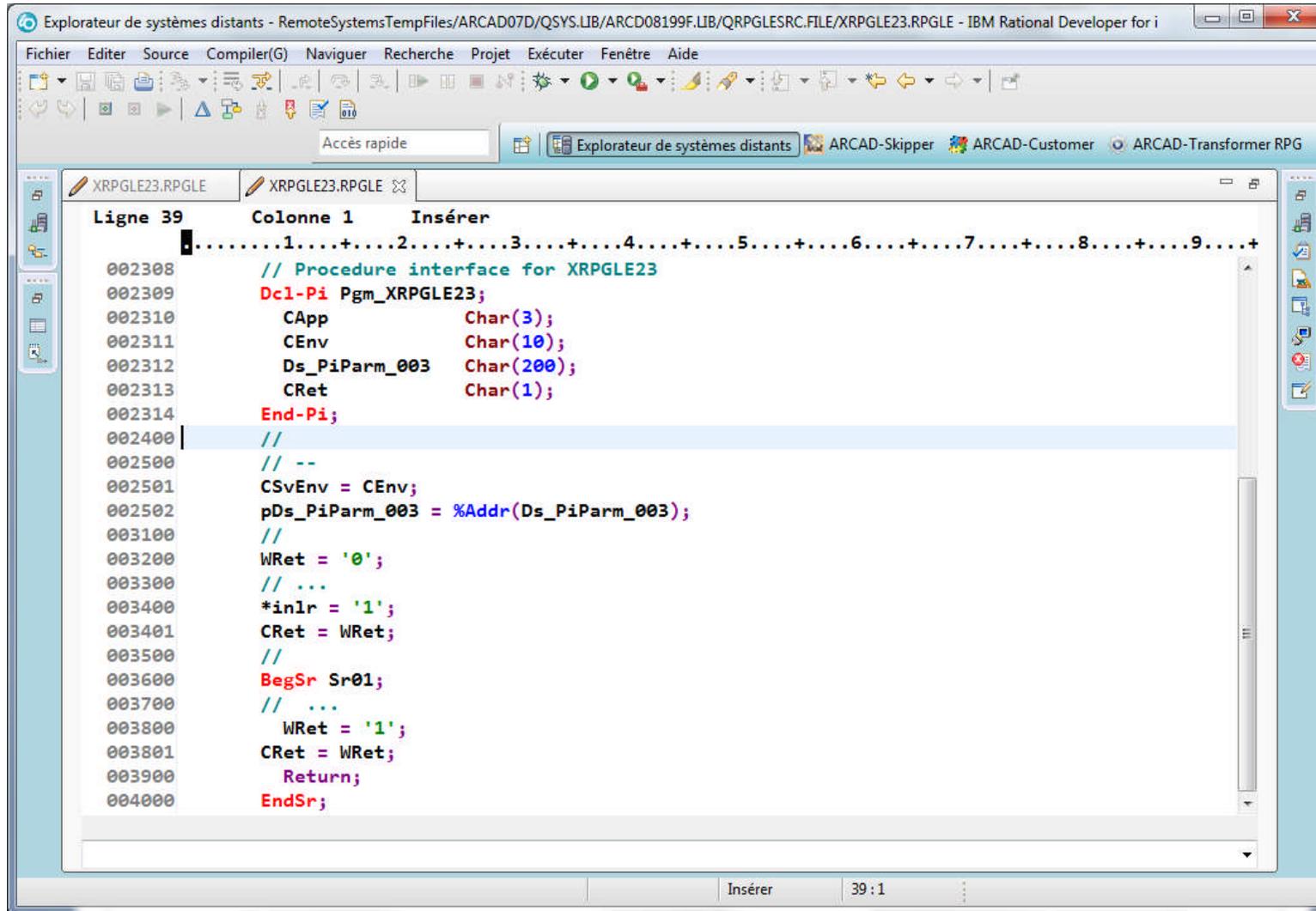
The status bar at the bottom of the editor shows "Insérer" and "18:1".

# Code opér. \*ENTRY PLIST (2)



```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLSRC.FILE/XRPGL23.RPGLE - IBM Rational Developer for i
Fichier  Éditer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
Accès rapide  Explorateur de systèmes distants  ARCAD-Skipper  ARCAD-Customer  ARCAD-Transformer RPG
XRPGL23.RPGLE  XRPGL23.RPGLE
Ligne 18  Colonne 1  Replacer
.... Free-Form+++++
001900  Dcl-S CSvEnv          Like(CEnv);
002001  Dcl-S pDs_PiParam_003 Pointer;
002100  Dcl-Ds Ds_Pgmr
002101           Based(pDs_PiParam_003);
002200           a_Pgmr          Char(10)      Dim(20);
002201  End-Ds;
002300  Dcl-S WRet           Char(1);
002301  // Prototype for XRPGL23
002302  Dcl-Pr Pgm_XRPGL23 ExtPgm('XRPGL23');
002303           CApp           Char(3);
002304           CEnv           Char(10);
002305           Ds_PiParam_003 Char(200);
002306           CRet           Char(1);
002307  End-Pr;
002308  // Procedure interface for XRPGL23
002309  Dcl-Pi Pgm_XRPGL23;
002310           CApp           Char(3);
002311           CEnv           Char(10);
002312           Ds_PiParam_003 Char(200);
002313           CRet           Char(1);
002314  End-Pi;
002400  //
002500  // --
Replacer  18:1
```

# Code opér. \*ENTRY PLIST (3)



```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLSRC.FILE/XRPGL23.RPGLE - IBM Rational Developer for i
Fichier  Editer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
Accès rapide  Explorateur de systèmes distants  ARCAD-Skipper  ARCAD-Customer  ARCAD-Transformer RPG
XRPGL23.RPGLE  XRPGL23.RPGLE
Ligne 39  Colonne 1  Insérer
.....1.....2.....3.....4.....5.....6.....7.....8.....9.....
002308      // Procedure interface for XRPGL23
002309      Dcl-Pi Pgm_XRPGL23;
002310          CApp          Char(3);
002311          CEnv          Char(10);
002312          Ds_PiParam_003 Char(200);
002313          CRet          Char(1);
002314      End-Pi;
002400      //
002500      // --
002501      CSvEnv = CEnv;
002502      pDs_PiParam_003 = %Addr(Ds_PiParam_003);
003100      //
003200      WRet = '0';
003300      // ...
003400      *inlr = '1';
003401      CRet = WRet;
003500      //
003600      BegSr Sr01;
003700      // ...
003800          WRet = '1';
003801      CRet = WRet;
003900      Return;
004000      EndSr;
```

# Codes opér. CALL, CALLB, PLIST, PARM (1)

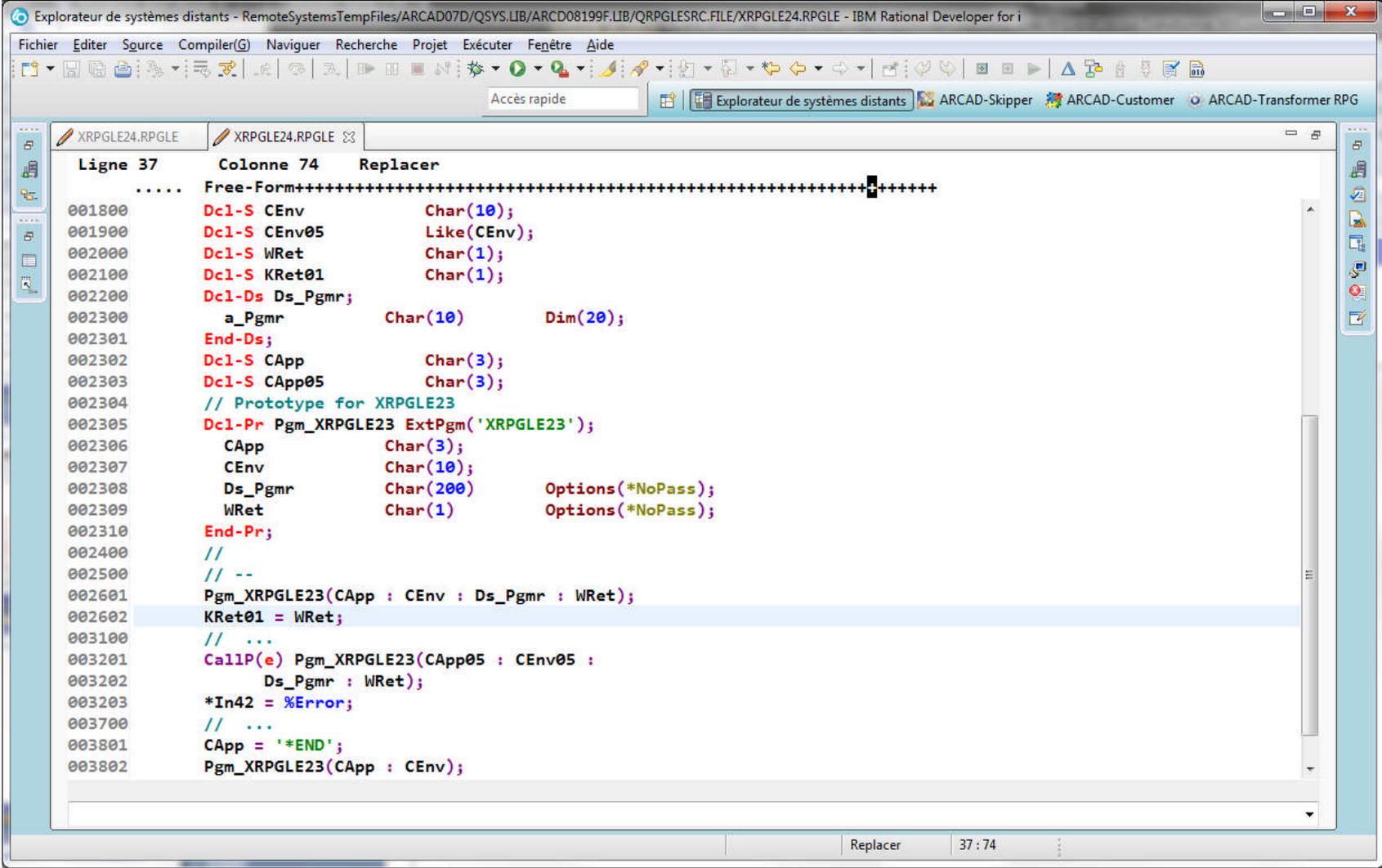
The screenshot shows the IBM Rational Developer for i interface. The main window displays a COBOL program with the following code:

```

Ligne 31      Colonne 83      Insérer
.....1.....2.....3.....4.....5.....6.....7.....8.....9.....0
001800      D CEnv          s          10a
001900      D CEnv05       s          Like(CEnv)
002000      D WRet        s          1a
002100      D KRet01      s          1a
002200      D Ds_Pgmr     Ds
002300      D a_Pgmr      10a          Dim(20)
002400      D*
002500      C*--
002600      C              CALL      'XRPGLE23'
002700      C              Parm          CApp          3
002800      C              Parm          CEnv
002900      C              Parm          Ds_Pgmr
003000      C              Parm          WRet
003100      C* ...
003200      C              CALL      'XRPGLE23'          42
003300      C              Parm          CApp05          3
003400      C              Parm          CEnv05
003500      C              Parm          Ds_Pgmr
003600      C              Parm          WRet
003700      C* ...
003800      C              CALL      'XRPGLE23'
003900      C              Parm          '*END'          CApp
004000      C              Parm          CEnv
    
```

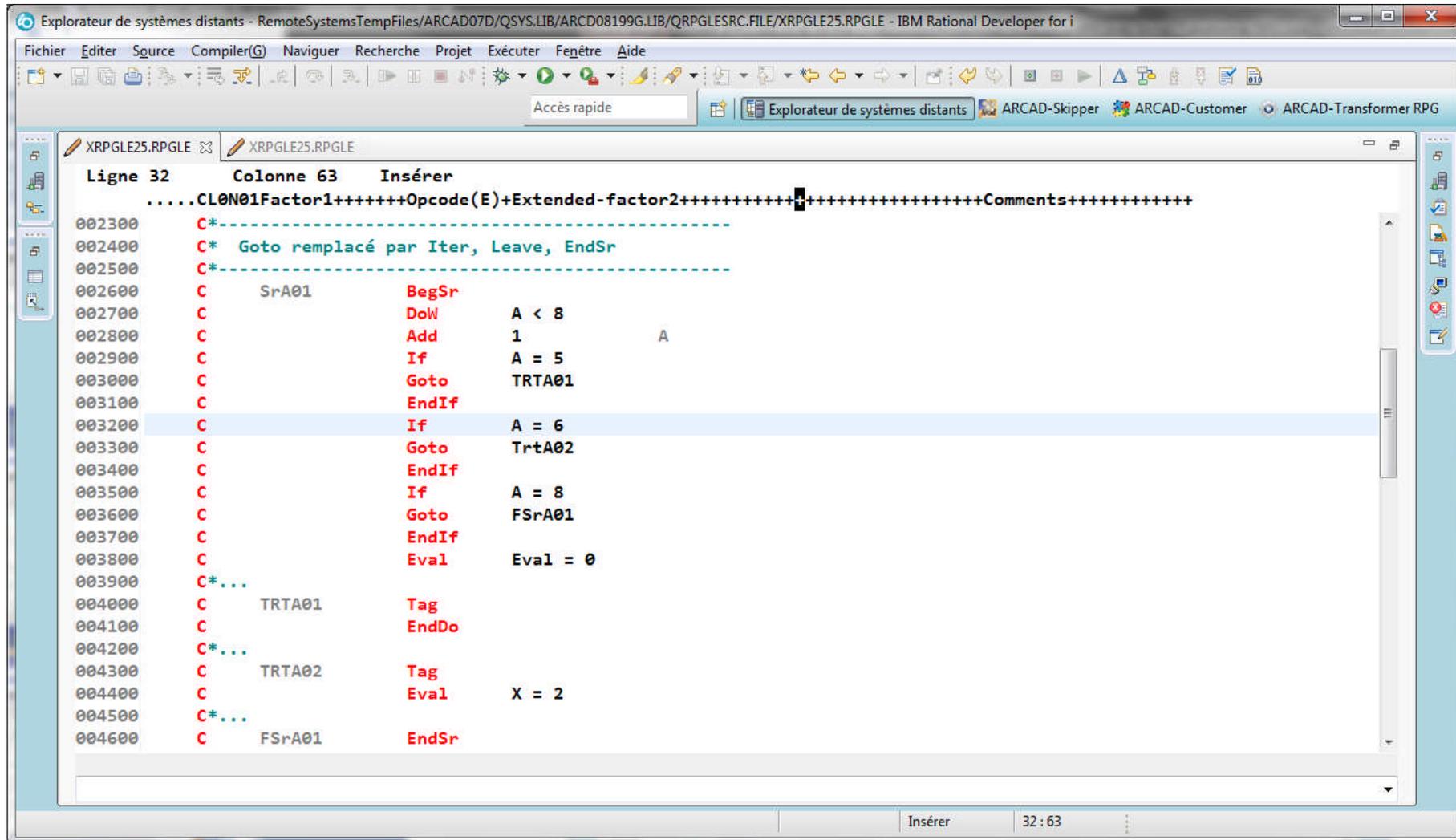
The status bar at the bottom of the editor shows "Insérer" and "31 : 83".

# Codes opér. CALL, CALLB, PLIST, PARM (2)



```
Explorateur de systèmes distants - RemoteSystemsTempFiles\ARCAD07D\QSYS.LIB\ARCAD08199F.LIB\QRPGLSRC.FILE\XRPGLE24.RPGLE - IBM Rational Developer for i
Fichier Editer Source Compiler(G) Naviguer Recherche Projet Exécuter Fenêtre Aide
Accès rapide Explorateur de systèmes distants ARCAD-Skipper ARCAD-Customer ARCAD-Transformer RPG
XRPGLE24.RPGLE XRPGLE24.RPGLE
Ligne 37 Colonne 74 Replacer
..... Free-Form+++++
001800 Dcl-S CEnv Char(10);
001900 Dcl-S CEnv05 Like(CEnv);
002000 Dcl-S WRet Char(1);
002100 Dcl-S KRet01 Char(1);
002200 Dcl-Ds Ds_Pgmr;
002300 a_Pgmr Char(10) Dim(20);
002301 End-Ds;
002302 Dcl-S CApp Char(3);
002303 Dcl-S CApp05 Char(3);
002304 // Prototype for XRPGLE23
002305 Dcl-Pr Pgm_XRPGLE23 ExtPgm('XRPGLE23');
002306 CApp Char(3);
002307 CEnv Char(10);
002308 Ds_Pgmr Char(200) Options(*NoPass);
002309 WRet Char(1) Options(*NoPass);
002310 End-Pr;
002400 //
002500 // --
002601 Pgm_XRPGLE23(CApp : CEnv : Ds_Pgmr : WRet);
002602 KRet01 = WRet;
003100 // ...
003201 CallP(e) Pgm_XRPGLE23(CApp05 : CEnv05 :
003202 Ds_Pgmr : WRet);
003203 *In42 = %Error;
003700 // ...
003801 CApp = '*END';
003802 Pgm_XRPGLE23(CApp : CEnv);
```

# Codes opér. GOTO, TAG (1)

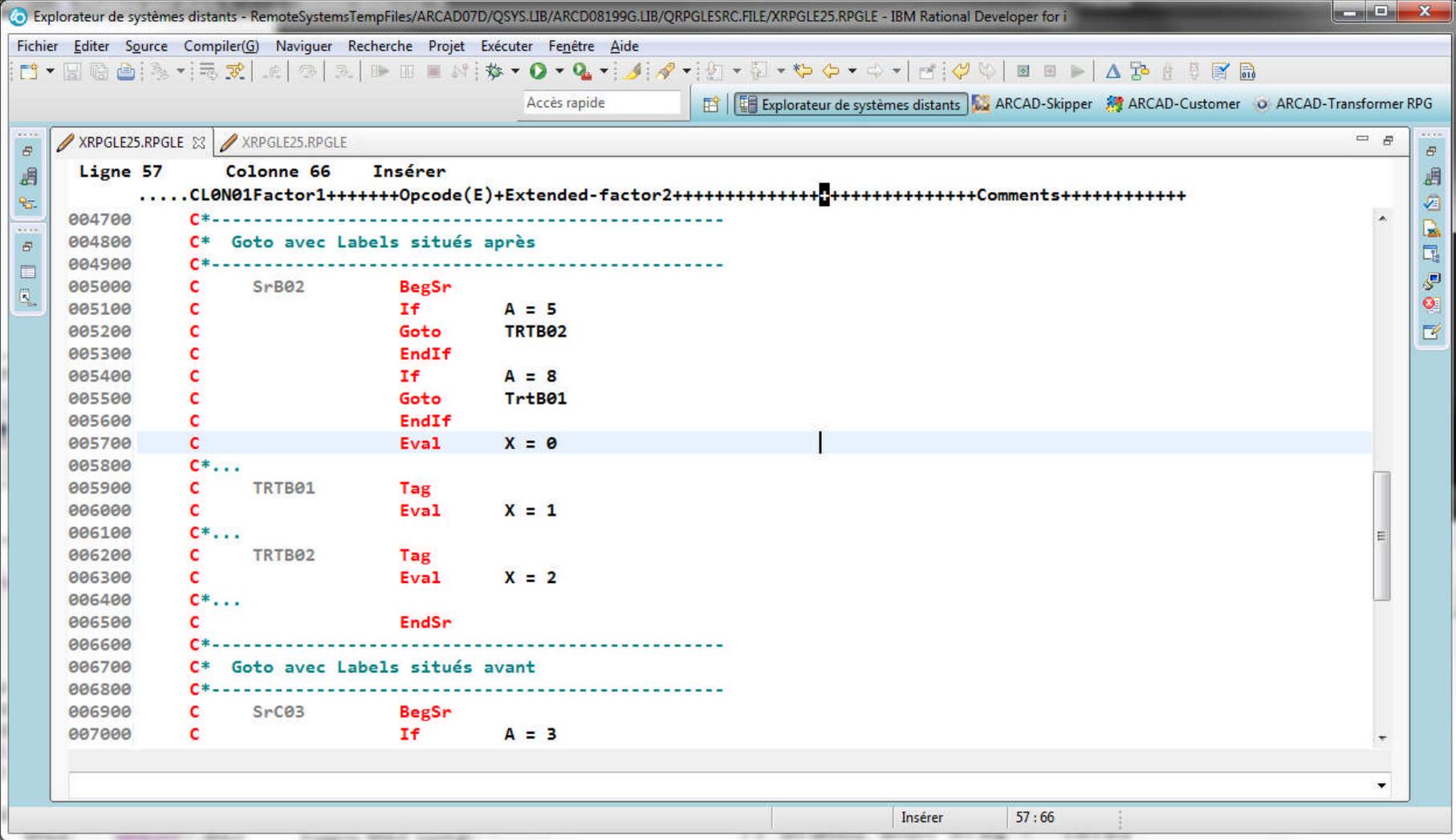


The screenshot displays the IBM Rational Developer for i interface. The main window shows the source code of an RPGLE program (XRPGL25.RPGLE). The code is structured as follows:

```
Ligne 32      Colonne 63      Insérer
.....CL0N01Factor1+++++Opcode(E)+Extended-factor2+++++*****Comments*****
002300      C*-----
002400      C*  Goto remplacé par Iter, Leave, EndSr
002500      C*-----
002600      C      SrA01          BegSr
002700      C              DoW          A < 8
002800      C              Add          1          A
002900      C              If          A = 5
003000      C              Goto          TRTA01
003100      C              EndIf
003200      C              If          A = 6
003300      C              Goto          TrtA02
003400      C              EndIf
003500      C              If          A = 8
003600      C              Goto          FSrA01
003700      C              EndIf
003800      C              Eval          Eval = 0
003900      C*...
004000      C      TRTA01          Tag
004100      C              EndDo
004200      C*...
004300      C      TRTA02          Tag
004400      C              Eval          X = 2
004500      C*...
004600      C      FSrA01          EndSr
```

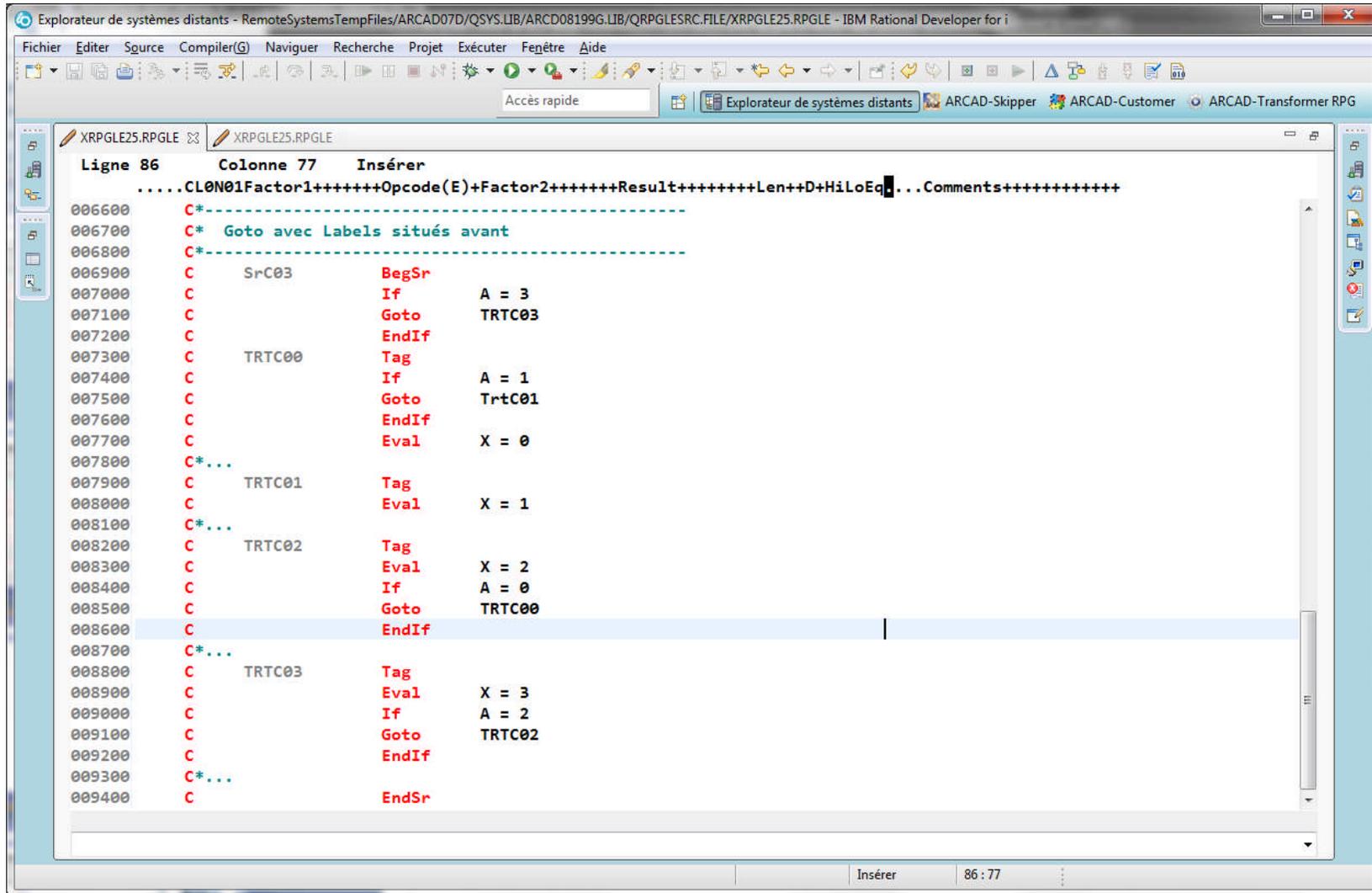
The status bar at the bottom of the window indicates the current cursor position: "Insérer 32 : 63".

## Codes opér. GOTO, TAG (2)



```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199G.LIB/QRPGLESRC.FILE/XRPGLE25.RPGLE - IBM Rational Developer for i
Fichier Editer Source Compiler(G) Naviguer Recherche Projet Exécuter Fenêtre Aide
Accès rapide Explorateur de systèmes distants ARCAD-Skipper ARCAD-Customer ARCAD-Transformer RPG
XRPGLE25.RPGLE XRPGLE25.RPGLE
Ligne 57      Colonne 66      Insérer
.....CL0N01Factor1+++++Opcode(E)+Extended-factor2+++++Comments+++++
004700      C*-----
004800      C* Goto avec Labels situés après
004900      C*-----
005000      C      SrB02      BegSr
005100      C              If      A = 5
005200      C              Goto    TRTB02
005300      C              EndIf
005400      C              If      A = 8
005500      C              Goto    TrtB01
005600      C              EndIf
005700      C              Eval    X = 0
005800      C*...
005900      C      TRTB01      Tag
006000      C              Eval    X = 1
006100      C*...
006200      C      TRTB02      Tag
006300      C              Eval    X = 2
006400      C*...
006500      C              EndSr
006600      C*-----
006700      C* Goto avec Labels situés avant
006800      C*-----
006900      C      SrC03      BegSr
007000      C              If      A = 3
```

# Codes opér. GOTO, TAG (3)

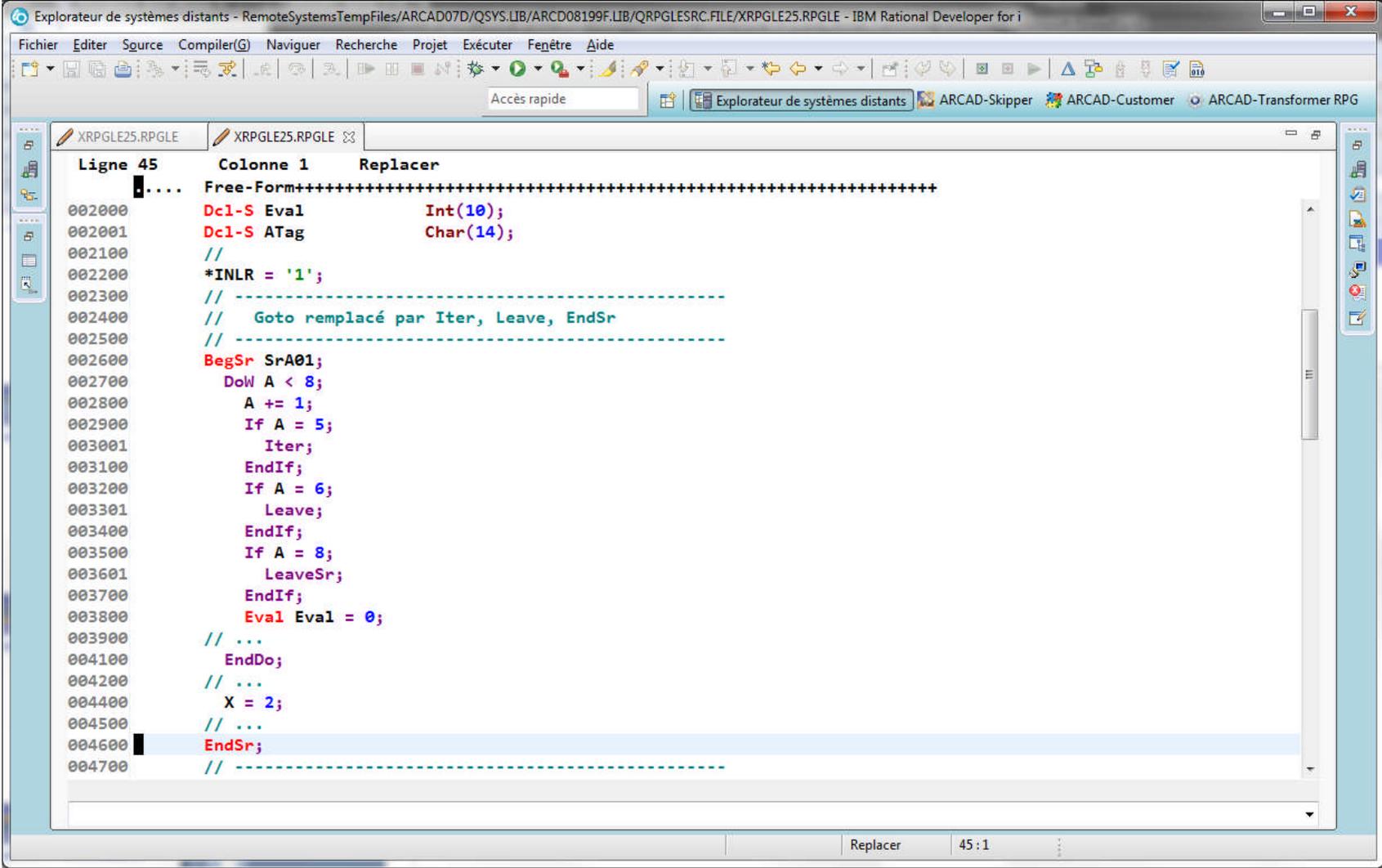


The screenshot displays the IBM Rational Developer for i interface, showing a window titled "Explorateur de systèmes distants - RemoteSystemsTempFiles\ARCAD07D\QSYS.LIB\ARCAD08199G.LIB\QRPGLSRC.FILE\XRPGL25.RPGLE". The main editor area shows the following RPGLE code:

```
Ligne 86      Colonne 77      Insérer
.....CL0N01Factor1+++++Opcode(E)+Factor2+++++Result+++++Len++D+HiLoEq...Comments+++++
006600      C*-----
006700      C* Goto avec Labels situés avant
006800      C*-----
006900      C      SrC03          BegSr
007000      C                                  If          A = 3
007100      C                                  Goto      TRTC03
007200      C                                  EndIf
007300      C      TRTC00      Tag
007400      C                                  If          A = 1
007500      C                                  Goto      TrtC01
007600      C                                  EndIf
007700      C                                  Eval      X = 0
007800      C*...
007900      C      TRTC01      Tag
008000      C                                  Eval      X = 1
008100      C*...
008200      C      TRTC02      Tag
008300      C                                  Eval      X = 2
008400      C                                  If          A = 0
008500      C                                  Goto      TRTC00
008600      C                                  EndIf
008700      C*...
008800      C      TRTC03      Tag
008900      C                                  Eval      X = 3
009000      C                                  If          A = 2
009100      C                                  Goto      TRTC02
009200      C                                  EndIf
009300      C*...
009400      C                                  EndSr
```

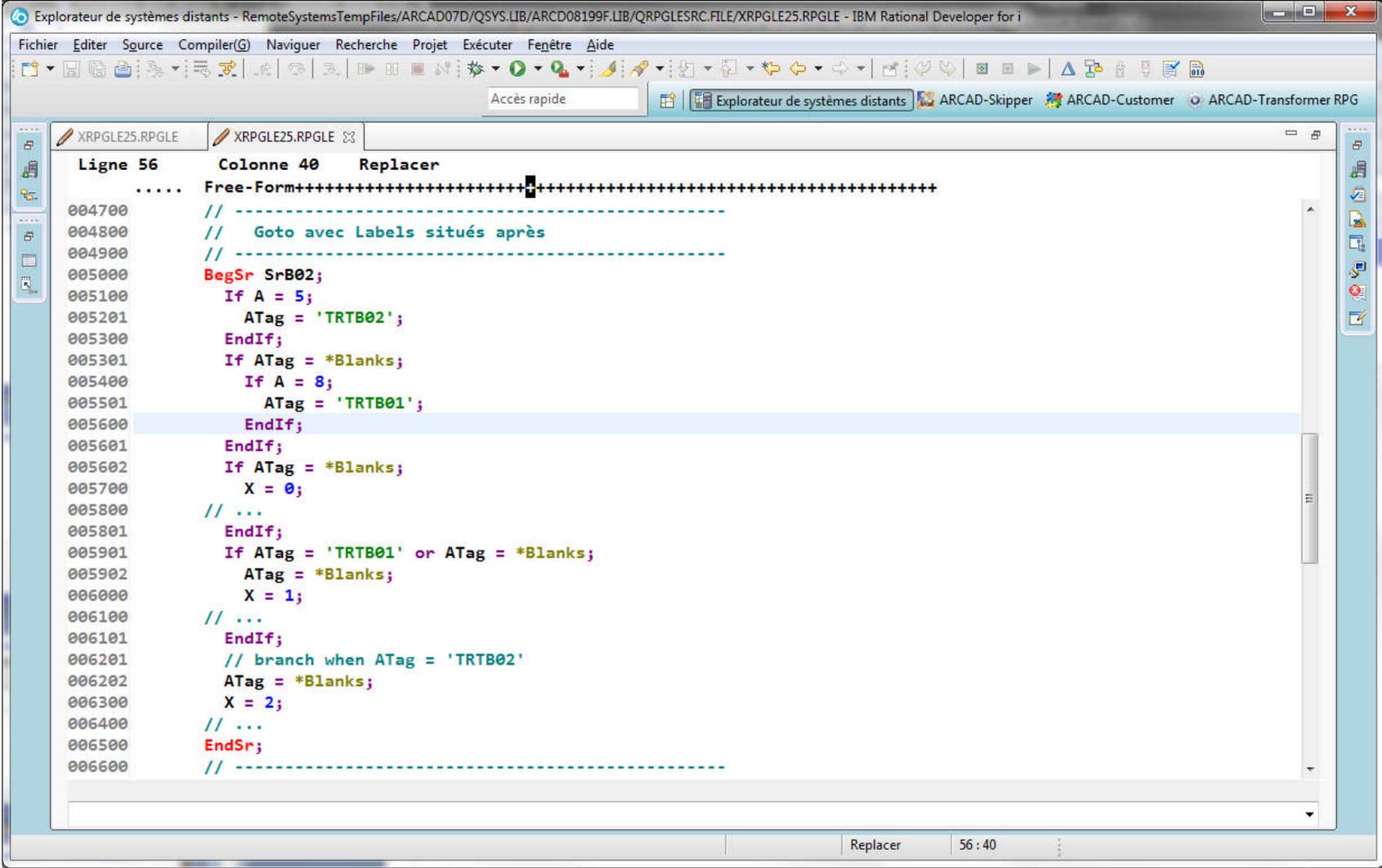
The status bar at the bottom of the editor shows "Insérer" and "86 : 77".

# Codes opér. GOTO, TAG (4)



```
Explorateur de systèmes distants - RemoteSystemsTempFiles\ARCAD07D\QSYS.LIB\ARCAD08199F.LIB\QRPGLSRC.FILE\XRPGL25.RPGLE - IBM Rational Developer for i
Fichier Editer Source Compiler(G) Naviguer Recherche Projet Exécuter Fenêtre Aide
Accès rapide Explorateur de systèmes distants ARCAD-Skipper ARCAD-Customer ARCAD-Transformer RPG
XRPGL25.RPGLE XRPGL25.RPGLE
Ligne 45 Colonne 1 Replacer
..... Free-Form+++++
002000 Dcl-S Eval Int(10);
002001 Dcl-S ATag Char(14);
002100 //
002200 *INLR = '1';
002300 // -----
002400 // Goto remplacé par Iter, Leave, EndSr
002500 // -----
002600 BegSr SrA01;
002700 DOW A < 8;
002800 A += 1;
002900 If A = 5;
003001 Iter;
003100 EndIf;
003200 If A = 6;
003301 Leave;
003400 EndIf;
003500 If A = 8;
003601 LeaveSr;
003700 EndIf;
003800 Eval Eval = 0;
003900 // ...
004100 EndDo;
004200 // ...
004400 X = 2;
004500 // ...
004600 EndSr;
004700 // -----
Replacer 45:1
```

# Codes opér. GOTO, TAG (5)

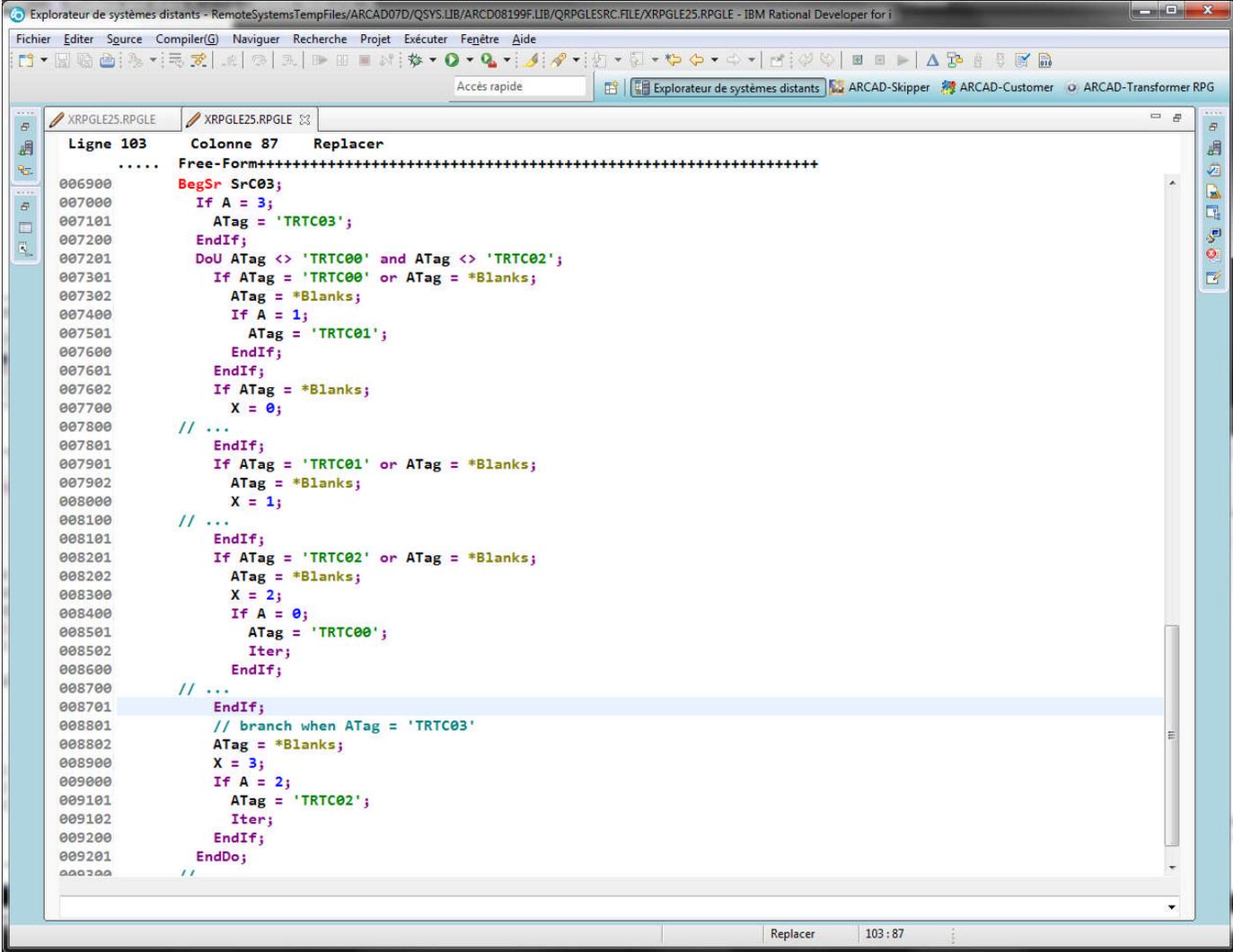


The screenshot displays the IBM Rational Developer for i interface. The main window shows a Free-Form RPGLE program with the following code:

```
..... Free-Form+++++
004700 // -----
004800 // Goto avec Labels situés après
004900 // -----
005000 BegSr SrB02;
005100   If A = 5;
005201     ATag = 'TRTB02';
005300   EndIf;
005301   If ATag = *Blanks;
005400     If A = 8;
005501       ATag = 'TRTB01';
005600     EndIf;
005601   EndIf;
005602   If ATag = *Blanks;
005700     X = 0;
005800   // ...
005801   EndIf;
005901   If ATag = 'TRTB01' or ATag = *Blanks;
005902     ATag = *Blanks;
006000     X = 1;
006100   // ...
006101   EndIf;
006201   // branch when ATag = 'TRTB02'
006202   ATag = *Blanks;
006300   X = 2;
006400   // ...
006500 EndSr;
006600 // -----
```

The status bar at the bottom of the editor shows "Replacer" and "56 : 40".

# Codes opér. GOTO, TAG (6)

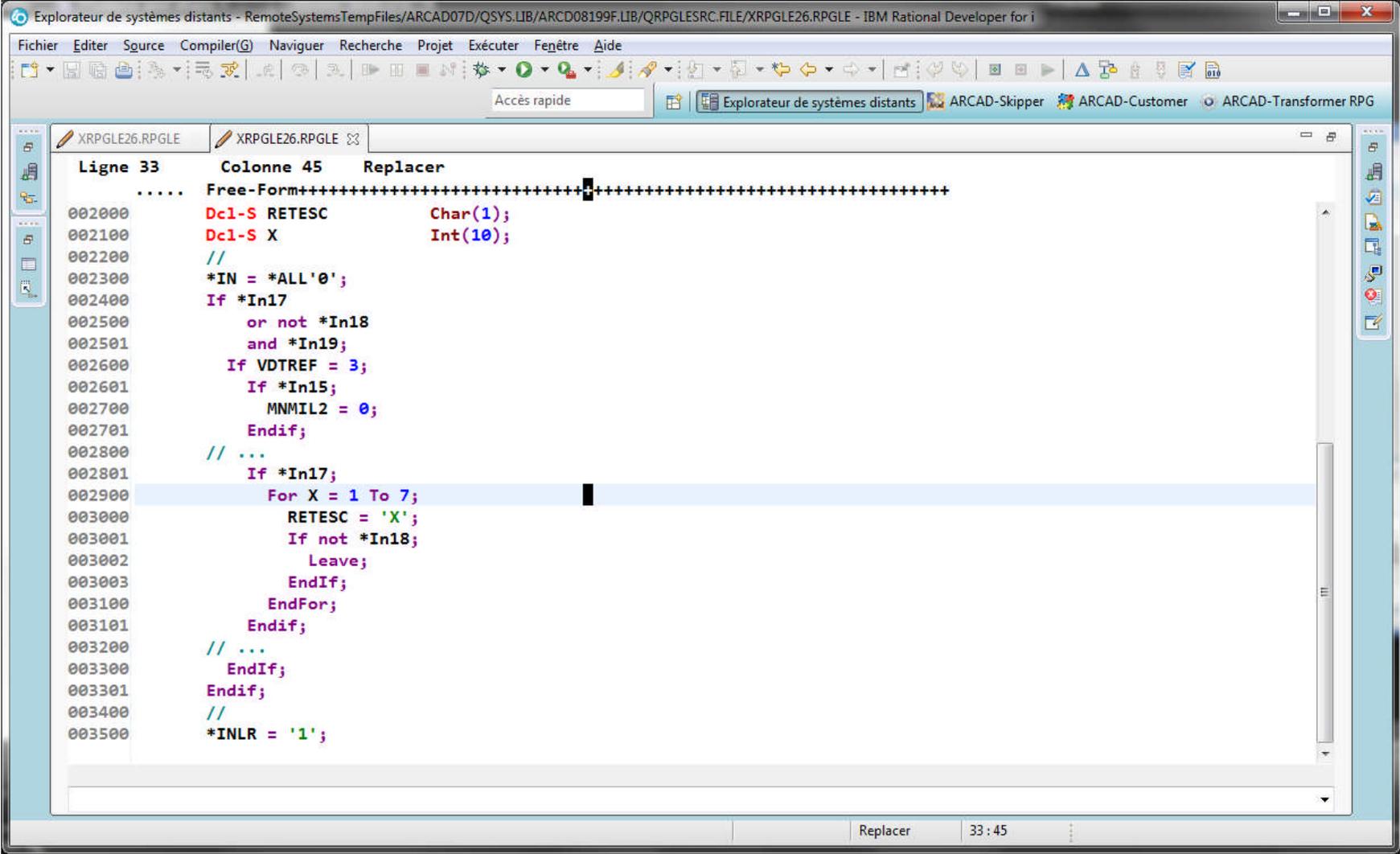


The screenshot displays the IBM Rational Developer for i environment. The main window shows a Free-Form RPGLE program with the following code:

```
..... Free-Form.....
006900 BegSr SrC03;
007000 If A = 3;
007101   ATag = 'TRTC03';
007200 EndIf;
007201 DoU ATag <> 'TRTC00' and ATag <> 'TRTC02';
007301   If ATag = 'TRTC00' or ATag = *Blanks;
007302     ATag = *Blanks;
007400     If A = 1;
007501       ATag = 'TRTC01';
007600     EndIf;
007601   EndIf;
007602   If ATag = *Blanks;
007700     X = 0;
007800   // ...
007801   EndIf;
007901   If ATag = 'TRTC01' or ATag = *Blanks;
007902     ATag = *Blanks;
008000     X = 1;
008100   // ...
008101   EndIf;
008201   If ATag = 'TRTC02' or ATag = *Blanks;
008202     ATag = *Blanks;
008300     X = 2;
008400     If A = 0;
008501       ATag = 'TRTC00';
008502       Iter;
008600     EndIf;
008700   // ...
008701   EndIf;
008801   // branch when ATag = 'TRTC03'
008802   ATag = *Blanks;
008900   X = 3;
009000   If A = 2;
009101     ATag = 'TRTC02';
009102     Iter;
009200   EndIf;
009201 EndDo;
009202 //
```



## Indicateurs conditionnant opérat. (2)



The screenshot displays the IBM Rational Developer for i environment. The main window shows a Free-Form RPGLE program named XRPGL26.RPGLE. The code is as follows:

```
..... Free-Form+++++
002000 Dcl-S RETESC          Char(1);
002100 Dcl-S X              Int(10);
002200 //
002300 *IN = *ALL'0';
002400 If *In17
002500     or not *In18
002501     and *In19;
002600     If VDTREF = 3;
002601         If *In15;
002700             MNMIL2 = 0;
002701         Endif;
002800     // ...
002801     If *In17;
002900         For X = 1 To 7;
003000             RETESC = 'X';
003001             If not *In18;
003002                 Leave;
003003             EndIf;
003100         EndFor;
003101     Endif;
003200     // ...
003300     Endif;
003301 Endif;
003400 //
003500 *INLR = '1';
```

The status bar at the bottom of the editor shows "Replacer" and "33:45".

# Code opération DEFINE (1)

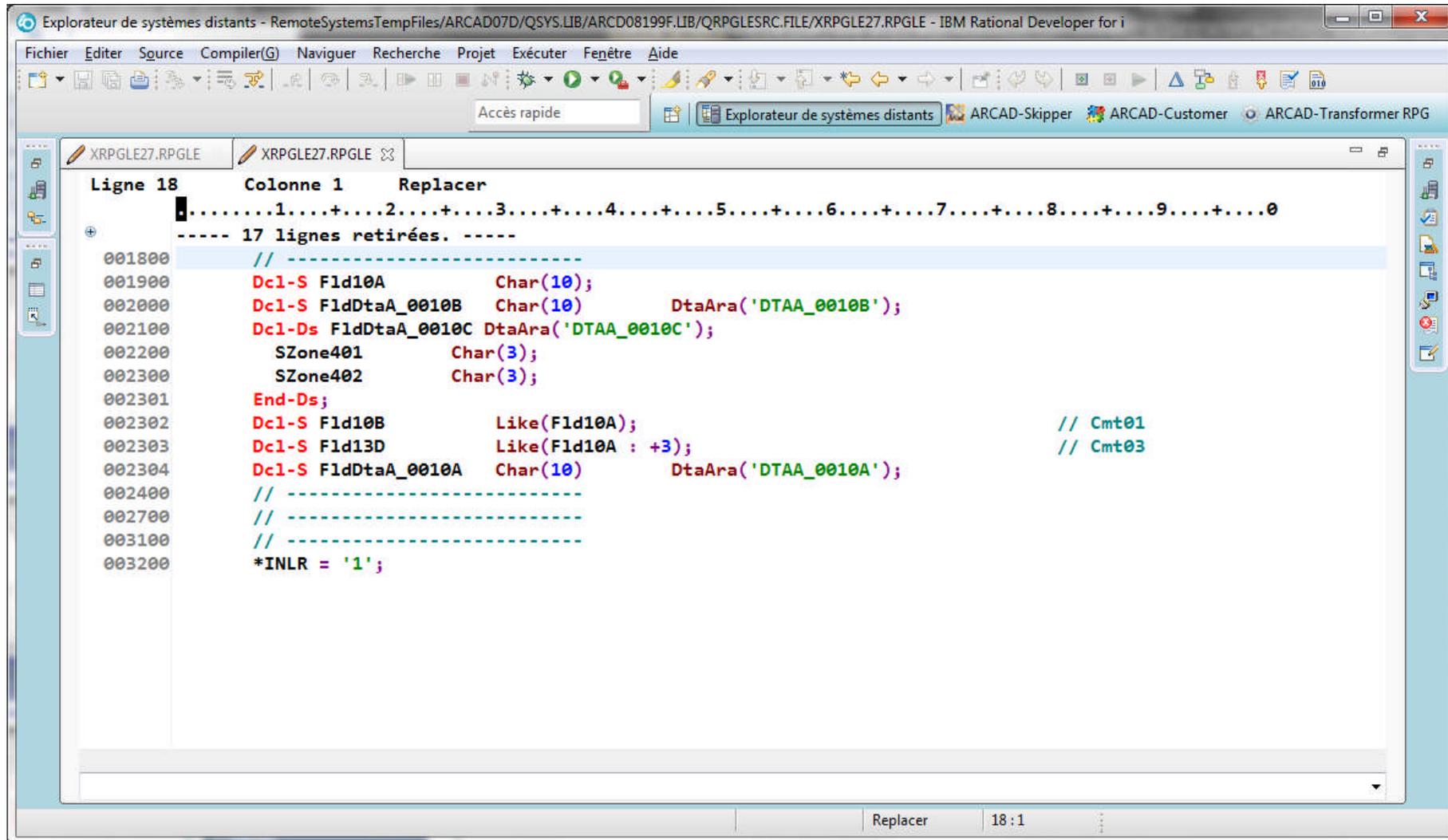
The screenshot shows the IBM Rational Developer for i interface with the following code in the editor:

```

Ligne 18      Colonne 1      Insérer
.....1.....+.....2.....+.....3.....+.....4.....+.....5.....+.....6.....+.....7.....+.....8.....+.....9.....+.....0
----- 17 lignes retirées. -----
001800      D*-----
001900      D  Fld10A          s          10A
002000      D  FldDtaA_0010B s          10A
002100      D  FldDtaA_0010C Ds
002200      D  SZone401          3A
002300      D  SZone402          3A
002400      C*-----
002500      C   *like          Define  Fld10A      Fld10B          Cmt01
002600      C   *like          Define  Fld10A      Fld13D          + 3      Cmt03
002700      C*-----
002800      C   *dtaara        Define  DTAA_0010A   FldDtaA_0010A   10
002900      C   *dtaara        Define  DTAA_0010B   FldDtaA_0010B
003000      C   *dtaara        Define  DTAA_0010C   FldDtaA_0010C
003100      C*-----
003200      C                   Seton          LR
    
```

The status bar at the bottom of the editor shows "Insérer" and "18 : 1".

## Code opération DEFINE (2)



The screenshot shows the IBM Rational Developer for i interface. The main window displays a COBOL program with the following code:

```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199F.LIB/QRPGLESRC.FILE/XRPGLE27.RPGLE - IBM Rational Developer for i
Fichier  Éditer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
Accès rapide  Explorateur de systèmes distants  ARCAD-Skipper  ARCAD-Customer  ARCAD-Transformer RPG

XRPGL27.RPGLE  XRPGL27.RPGLE
Ligne 18  Colonne 1  Replacer
.....1.....+.....2.....+.....3.....+.....4.....+.....5.....+.....6.....+.....7.....+.....8.....+.....9.....+.....0
----- 17 lignes retirées. -----
001800  // -----
001900  Dcl-S Fld10A          Char(10);
002000  Dcl-S FldDtaA_0010B  Char(10)      DtaAra('DTAA_0010B');
002100  Dcl-Ds FldDtaA_0010C DtaAra('DTAA_0010C');
002200      SZone401        Char(3);
002300      SZone402        Char(3);
002301  End-Ds;
002302  Dcl-S Fld10B          Like(Fld10A);           // Cmt01
002303  Dcl-S Fld13D          Like(Fld10A : +3);      // Cmt03
002304  Dcl-S FldDtaA_0010A  Char(10)      DtaAra('DTAA_0010A');
002400  // -----
002700  // -----
003100  // -----
003200  *INLR = '1';
```

The status bar at the bottom of the editor shows "Replacer" and "18 : 1".

# Utilisation de %ParmNum(..) (1)

```
Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199G.LIB/QRPGLESRC.FILE/XRPGL28.RPGLE - IBM Rational Developer for i
Fichier Editer Source Compiler(G) Naviguer Recherche Projet Exécuter Fenêtre Aide
Accès rapide Explorateur de systèmes distants ARCAD-Skipper ARCAD-Customer
XRPGL28.RPGLE XRPGL28.RPGLE
Ligne 41 Colonne 1 Replacer
.....1.....+.....2.....+.....3.....+.....4.....+.....5.....+.....6.....+.....7.....+.....8.....+.....9...
002200 D*
002300 D sds
002400 D NbParm *parms
002500 *-----*
002600 C *entry plist
002700 C Parm e_Code01 10
002800 C Parm e_Code02 8
002900 C Parm e_Code03 11
003000 C/Free
003100 If %parms > 1;
003200 // ...
003300 EndIf;
003400 /End-Free
003500 C
003600 C If NbParm >= 3
003700 C*...
003800 C EndIf
003900 C*
004000 C Seton LR
004100 *-----*
```

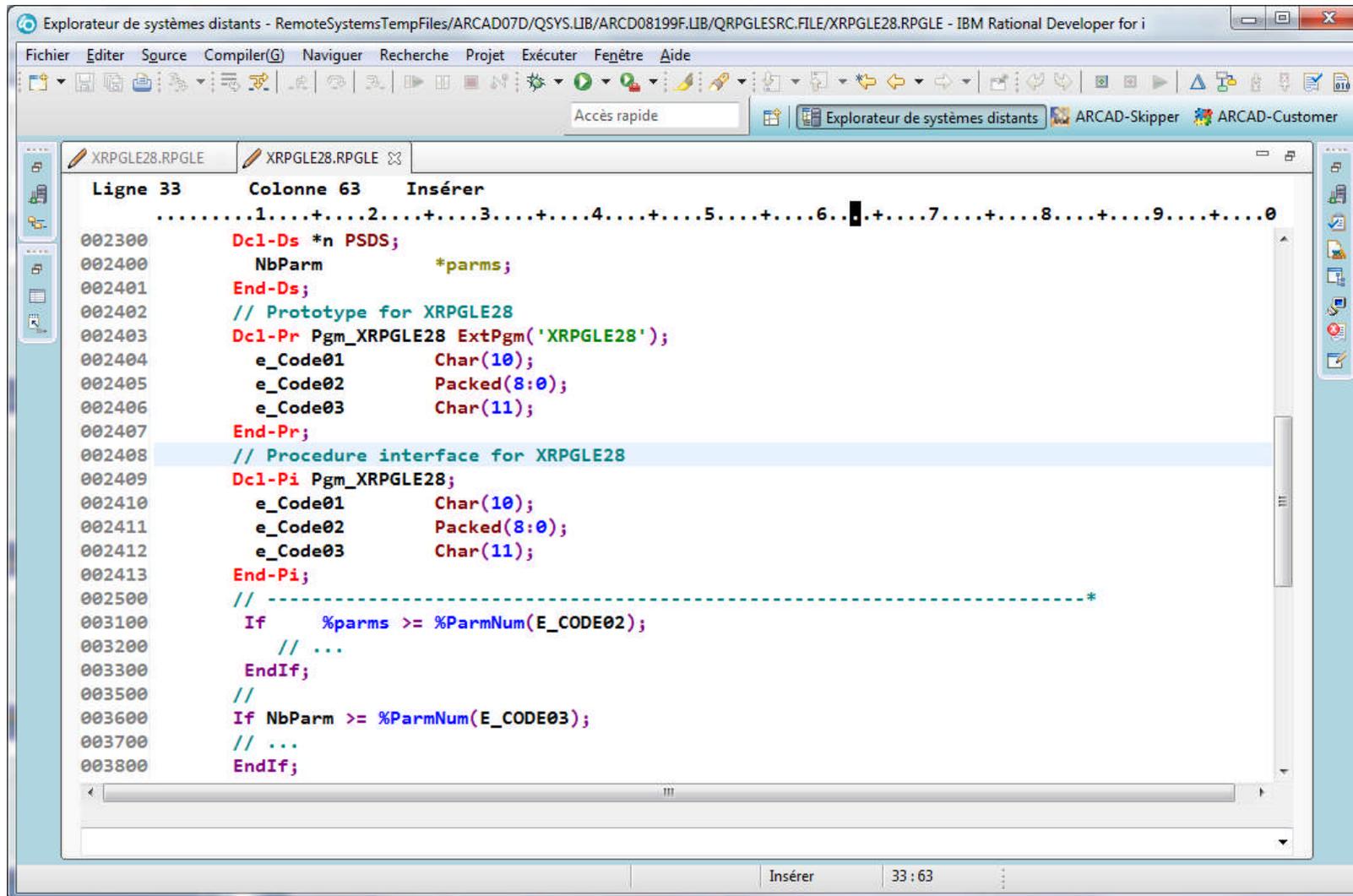
## Utilisation de %ParmNum(..) (2)

```

Explorateur de systèmes distants - RemoteSystemsTempFiles/ARCAD07D/QSYS.LIB/ARCD08199G.LIB/QRPGLESRC.FILE/XRPGLE28.RPGLE - IBM Rational Developer for i
Fichier Editer Source Compiler(G) Naviguer Recherche Projet Exécuter Fenêtre Aide
Accès rapide Explorateur de systèmes distants ARCAD-Skipper ARCAD-Customer
XRPGLE28.RPGLE XRPGLE28.RPGLE
Ligne 43 Colonne 1 Replacer
.....1.....+.....2.....+.....3.....+.....4.....+.....5.....+.....6.....+.....7.....+.....8.....+.....9...
----- 1 ligne retirée. -----
004300 *-----*
004400 P prUpdOBJrzd B EXPORT
004500 D PI 5 0
004600 D e_SeqId 7a Const * Sequence :
004700 D e_Rclds 10i 0 Const Options(*NoPass:*Omit) * Rclds proc
004800 D e_ESizeInc 10i 0 Options(*NoPass:*Omit) * Dest.size
004900
005000
005100 * Number of records passed ? :
005200 C If %parms >=2 and %addr(e_Rclds) <> *Null
005300 C*...
005400 C EndIf
005500 * Return parameter:
005600 C If %parms >=3 and %addr(e_ESizeInc) <> *Null
005700 C*...
005800 C EndIf
005900 C*
006000 C Return 0
006100 P E
Replacer 43:1

```

## Utilisation de %ParmNum(..) (3)

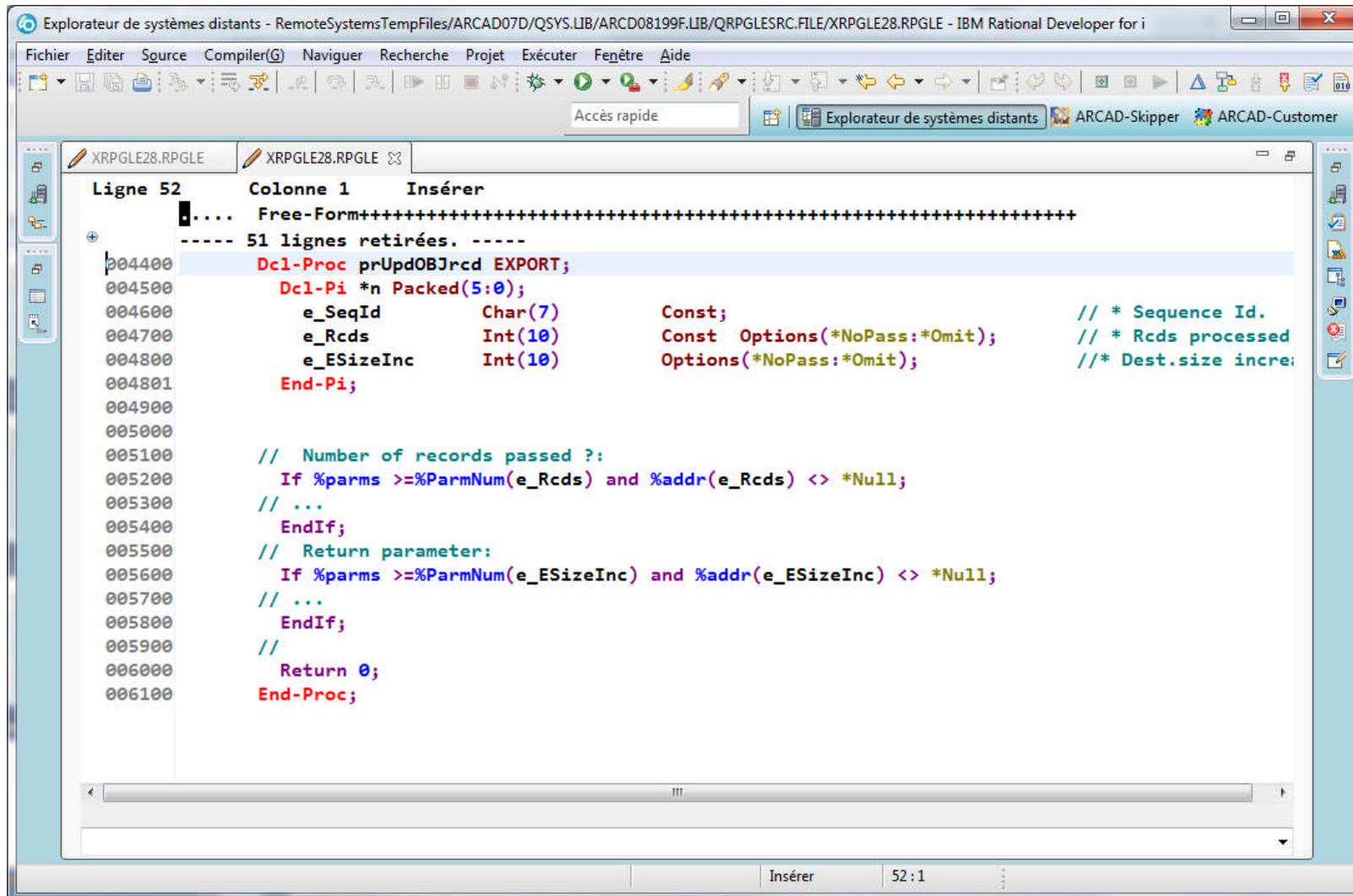


The screenshot shows the IBM Rational Developer for i interface. The main window displays the source code for XRPGL28.RPGLE. The code includes a data structure declaration, a prototype, and a procedure interface. The procedure interface uses %ParmNum(..) to compare the number of parameters with the number of codes.

```
Explorateur de systèmes distants - RemoteSystemsTempFiles\ARCAD07D\QSYS.LIB\ARCAD08199F.LIB\QRPGLSRC.FILE\XRPGL28.RPGLE - IBM Rational Developer for i
Fichier  Éditer  Source  Compiler(G)  Naviguer  Recherche  Projet  Exécuter  Fenêtre  Aide
Accès rapide  Explorateur de systèmes distants  ARCAD-Skipper  ARCAD-Customer

XRPGL28.RPGLE  XRPGL28.RPGLE
Ligne 33  Colonne 63  Insérer
.....1.....2.....3.....4.....5.....6.....7.....8.....9.....0
002300      Dcl-Ds *n PSDS;
002400      NbParm          *parms;
002401      End-Ds;
002402      // Prototype for XRPGL28
002403      Dcl-Pr Pgm_XRPGL28 ExtPgm('XRPGL28');
002404          e_Code01      Char(10);
002405          e_Code02      Packed(8:0);
002406          e_Code03      Char(11);
002407      End-Pr;
002408      // Procedure interface for XRPGL28
002409      Dcl-Pi Pgm_XRPGL28;
002410          e_Code01      Char(10);
002411          e_Code02      Packed(8:0);
002412          e_Code03      Char(11);
002413      End-Pi;
002500      // -----*
003100      If      %parms >= %ParmNum(E_CODE02);
003200          // ...
003300      EndIf;
003500      //
003600      If NbParm >= %ParmNum(E_CODE03);
003700          // ...
003800      EndIf;
```

## Utilisation de %ParmNum(..) (4)



The screenshot shows the IBM Rational Developer for i interface. The main window displays a COBOL program named XRPGL28.RPGLE. The code is as follows:

```
Ligne 52      Colonne 1      Insérer
..... Free-Form+++++
----- 51 lignes retirées. -----
004400      Dcl-Proc prUpdOBJrcd EXPORT;
004500          Dcl-Pi *n Packed(5:0);
004600              e_SeqId      Char(7)          Const;                // * Sequence Id.
004700              e_Rcds        Int(10)         Const Options(*NoPass:*Omit); // * Rclds processed
004800              e_ESizeInc     Int(10)         Options(*NoPass:*Omit); // * Dest.size incre:
004801          End-Pi;
004900
005000
005100          // Number of records passed ?:
005200          If %parms >=%ParmNum(e_Rcds) and %addr(e_Rcds) <> *Null;
005300          // ...
005400          EndIf;
005500          // Return parameter:
005600          If %parms >=%ParmNum(e_ESizeInc) and %addr(e_ESizeInc) <> *Null;
005700          // ...
005800          EndIf;
005900          //
006000          Return 0;
006100      End-Proc;
```

The status bar at the bottom of the editor shows "Insérer" and "52:1".

## Conditions de vente

- Le produit peut être commandé
  - Au près d'IBM
  - Ou directement au près d'ARCAD Software
  
- Le tarif est de 1000€ par tranche de 500 sources convertis.

## Chargement pour essais libres

- Sur le site d'ARCAD Software :

<http://www.arcadsoftware.com/resource-items/arcad-transformer-rpg>

- En fournissant ses références + N° série machine et n° de partition
- Installation via RDI 9 (ou RDP 8.5) des 2 parties :
  - PlugIn Arcad Transformer RPG sur votre PC
  - Bibliothèque ARCAD\_RPG sur l'IBM i
- Possibilité d'essai libre de 10 conversions