# 017921w14 Pattern Manager 6.0

User Guide

Author’s name Lambley, Jason

Business unit Customer Service Delivery

Implementation Approval Craig Goodwin Network & Service Incident Manager SOM Incident Management Customer Service Delivery

Sub-business unit Service Outage Management

Issue date

Issue number 6Telstra ID þÿ

AAV-3348

Process Owner Jason Lambley SOM Skills Specialilst

**Summary** The purpose of this work instruction is to provide a user operating guide to the Pattern Manager application used by Customer Service Delivery Service Outage Management (SOM) to identify potential outages from related fault patterns.

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 1/86

017921w14 Pattern Manager 6.0 (continued)

**Contents**

**1. Purpose 5**

**2. Scope 5**

**3. Overview of Pattern Manager 6.0 5**

**4. Overview of major upgrade 2016 6**

**5. User Profiles 7**

**6. Get Access to Pattern Manager 8**

**7. Login & Navigation 9**

**7.1. Log in to NODS-PM 9**

**7.2. Home Menu Screen 9**

**7.3. Basic Navigation 10**

**7.4. Log into Pattern Manager 10**

**7.5. Pattern Manager Home Menu screen 11**

**7.6. Pattern Manager Navigation 12**

**8. CAN Patterner Version 6.0 13**

**8.1. Select Region 13**

**8.2. Select Exchange 14**

**8.3. CAN Exchange screen 14**

**8.4. CAN Fault Patterning Rules 16**

**8.4.1. Form CAN fault pattern 16 8.4.2. Display CAN fault pattern 17 8.4.3. Special CAN patterning and display rules 17**

**8.5. Analyse CAN Fault Pattern 19**

**8.6. Create NODS from CAN Patterner 20**

**8.7. Check off CAN Fault Pattern 21**

**9. PGS Patterner Version 6.0 23**

**9.1. Select Region 23**

**9.2. Select Exchange 24**

**9.3. PGS Exchange screen 24**

**9.4. PGS Fault Patterning Rules 26**

**9.4.1. Form PGS fault pattern 26 9.4.2. Display PGS fault pattern 27 9.4.3. CMUX patterning & display rules 27 9.4.4. PGS in secondary exchange 30 9.4.5. Special PGS patterning and display rules 31**

**9.5. Analyse PGS Fault Pattern 32**

**9.6. Create NODS from PGS Patterner 32**

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 2/86

017921w14 Pattern Manager 6.0 (continued)

**9.7. Check off PGS Fault Pattern 33**

**10. Switch Patterner Version 6.0 35**

**10.1. Select Region 35**

**10.2. Select Node 36**

**10.3. Switch Node screen 37**

**10.4. Switch Fault Patterning Rules 38**

**10.4.1. Form Switch fault pattern 39 10.4.2. Display Switch fault pattern 39**

**10.5. Analyse Switch Fault Pattern 40**

**10.6. Create NODS from Switch Patterner 40**

**10.7. Check off Switch Fault Pattern 41**

**11. Broadband Patterner Version 2.0 43**

**11.1. Select Region 43**

**11.2. Select Exchange 44**

**11.3. BB CAN Exchange screen 44**

**11.4. BB CAN Fault Patterning Rules 46**

**11.4.1. Form BB CAN fault pattern 46 11.4.2. Display BB CAN fault pattern 47 11.4.3. CMUX display rules in BB CAN Patterner 47 11.4.4. Special patterning & display rules 48**

**11.5. Analyse BB CAN Fault Pattern 48**

**11.6. Create NODS 49**

**11.7. Check off BB CAN Fault Pattern 49**

**11.7.1. BVH Check off code 50**

**12. Priority Outage Dashboard 51**

**12.1. Priority Outage Display 52**

**12.2. Priority Patterning Rules - Unchecked 53**

**12.3. Priority Patterning Rules - Fast 54**

**12.3.1. Patterner Hierarchy rule 54 12.3.2. Network Element rules 55 12.3.2.1. PGS Patterner 55 12.3.2.2. Switch Patterner 55 12.3.2.3. BB CAN Patterner 56 12.3.2.4. CAN Patterner 56**

**12.4. Priority Pattern Auto NODS 59**

**12.5. Investigate Priority Pattern 60**

**12.6. Action Priority Pattern 61**

**13. Pattern Manager Admin Version 2.0 63**

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 3/86

017921w14 Pattern Manager 6.0 (continued)

**13.1. Guidelines for Pattern Manager Admin changes 65**

**13.2. Update Priority Thresholds 65**

**13.3. Update Patterner Thresholds 67**

**13.4. Update Age of Patterning Data 68**

**13.5. Update Checklist Code 69**

**13.6. Update Symptom Code 69**

**13.7. Update PGS Type 70**

**13.8. Update Exchange 71**

**13.9. Update Auto Outage Exchange 72**

**13.10. Audit Trail Report 73**

**13.11. Pattern Manager Admin Messages 75**

**14. Functionality common to all Patterners 76**

**14.1. Plain Text View 76**

**14.2. Hyperlinks to Other Patterners 77**

**14.3. Table of PSTN Symptom Codes 78**

**14.4. Table of ADSL Symptom Codes 79**

**14.5. Create NODS from Patterner 80**

**14.6. Service Types 82**

**14.7. Check off Codes 82**

**14.8. Table Check Off Codes 84**

**14.9. Patterner Refresh Rates and Timings 85**

**15. References 86**

**16. Attachments 87**

**17. Definitions 87**

**18. Document Control Sheet 88**

# **1. Purpose**

# The purpose of this work instruction is to provide a user operating guide to the Pattern Manager application used by Customer Service Delivery Service Outage Management (SOM) to identify potential outages from related customer fault patterns.

# 2. Scope

This document is a system user guide for Pattern Manager 6.0.

It describes and explains the features, screen elements, field values, and patterning and display rules and provides instructions on login, navigation, support and using the various functions.

This document does not directly cover the business processes used by SOM consultants to monitor, analyse or action related fault patterns as part of outage management.

For details of these procedures refer to work instructions 017921w06 Outage Identification & Setup and 017921w07 Pattern Manager – Identification & Actioning of Related Fault Patterns.

# 3. Overview of Pattern Manager 6.0

Pattern Manager 6.0 is a web based application which interfaces with SIIAM.

Pattern Manager (PM) is used to identify related fault patterns with a common network element which may indicate an outage.

An outage is any significant disruption to the network affecting multiple services and with a single or related technical cause.

PM gathers SIIAM data for customer fault reports which meet certain criteria – e.g. specific FNN types, symptom codes and plant types and which are within a 72 hour reporting window - and then applies patterning rules to identify common network elements e.g. customer faults having the same Pillar or same Pair Gain System.

Patterned faults are stored until certain display criteria are met and then are displayed in a Graphical User Interface (GUI) screen as colour-differentiated groups along with key information to facilitate pattern analysis by SOM consultants. (*Refer Figure 1*)

Faults (new and existing) are re-analysed every 10 minutes.

A Check code field allows the user to mark off patterns with the determination made/action taken.

A SOM Administrator option allows SOM managers and complex consultants to adjust fault pattern display thresholds and to make some other basic changes (e.g. to add or remove symptom and/or check-off codes) in response to operational requirements.

There are 4 different fault Patterners within the Pattern Manager application:

## 1. CAN Patterner 6.0

Identifies related fault patterns on CAN copper cable elements e.g. main cable

## 2. PGS Patterner 6.0

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 5/86

017921w14 Pattern Manager 6.0 (continued)

Identifies related fault patterns on Pair Gain Systems e.g. RIM or RAM 8

## 3. Switch Patterner 6.0

Identifies related fault patterns on Exchange Switches e.g. AXE or S12

## 4. Broadband CAN Patterner 2.0

Identifies related broadband fault patterns on CAN copper cable elements e.g. Pillar

Faults can appear in more than one Patterner. For example, a fault with both common Switching and CAN elements may appear in both CAN and Switch Patterners (e.g. When it is “fed” by both the same pillar and is in the same AXE Exchange Magazine). In these cases, an active hyperlink will allow the user to toggle between the 2 patterns or view them side by side. Faults with common PGS and CAN elements will also be hyperlinked. This facilitates analysis of the true underlying common network element.

Related fault patterns formed and displayed in Pattern Manager are indications of potential outage only and must be investigated and analysed by SOM Complex Consultants, using a range of other systems and tools, e.g. SULTAN, NPAMS, GDD, CASINO, etc. and/or by consulting with CT’s or other technical workgroups before a final determination and scope of an outage can be confirmed.

## 4. Overview of major upgrade 2016

In November 2016 a major upgrade of Pattern Manager occurred to introduce the following enhancements:

5. Transition TADA Pattern Manager to a shared java-script web-GUI along with NODS

6. Implement Priority Patterning of rapid forming and large fault patterns

7. Implement automatic NODS creation from Priority Patterns

8. Implement manual creation of NODS direct from within Pattern Manager

9. Improve fault patterning and display by adding additional functions:

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 6/86

017921w14 Pattern Manager 6.0 (continued)

10. Gateway in all Patterners

11. Exchange in Switch Patterner

12. Full network address for AXE and System 12 Switches

13. ‘Update All’ capability

14. Update User Management to align with current business roles and security

requirements.

In parallel with the NODS/Pattern Manager Enhancement, the newly developed Mozart CONEN to NODS solution on the PUMA platform developed by Telstra Service Ops (TSO) Network Automations enables NODS to be created automatically from CONEN notifications raised by Service Assurance Ops (SAO) for network incidents (i.e. unplanned outages affecting core network).

## **5. User Profiles** There are 5 User Profiles or Access Levels available in the combined NODS-Pattern Manager web application:

### 15.Level 3 NODS-PM

System developers and IT support only

Access to all functions

### 16.Level 2 NODS-PM

Systems Security and Access only

Access to user management functions only

### 17.Super User NODS-PM

Typically SOM Complex Consultants

Able to create NODS; able to update, cease user & interface created NODS

Able to view and update Pattern Manager

Able to access and change Pattern Manager Configuration settings

### 18.Read/Write NODS-PM

Typically SOM Simplex Consultants & CNSC Data and Afterhours Testers

Able to create NODS; able to update, cease user & interface created NODS

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 7/86

017921w14 Pattern Manager 6.0 (continued)

Able to view and update Pattern Manager

### 19.Read/Write NODS

Typically SOM Partner agents

Able to create NODS; able to update, cease user & interface created NODS

NOTE: This profile does NOT include access to Pattern Manager

### 20.Read-only PM

Typically GOC consultants

Able to view Pattern Manager only (i.e. Read-only)

**NOTE**: This profile does NOT include access to NODS

## 6. Get Access to Pattern Manager

Pattern Manager is now bundled with NODS. New Access or changes to existing access level to NODS-Pattern Manager web-application is by online request via the Telstra Intranet.

The stand-alone Read-Only Pattern Manager access level must also be requested via the NODS New access form.

21. MyIT website

22. Log an IT fault or service request

23. Service Desk Online

24. Software Applications

25. NODS – National Outage Database System

26. Then select either:

NODS New Access

 To apply for new access to NODS-Pattern Manager application

NODS/Modify/Delete

 To modify access level or delete access to NODS-Pattern Manager application

NODS Password Reset

 For NODS-Pattern Manager application password reset

NODS Fault

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 8/86

017921w14 Pattern Manager 6.0 (continued)

 For faults with the NODS-Pattern Manager application (e.g. unable to log in, slow

response, etc.)

New or changed access requests will need to specify the required access level according to the user’s business role (refer section 7) and will require the approval of the user’s one up manager.

**NOTE**: The previous generic logins for Read-only access to Pattern Manager are no longer available. Users requiring Read-only access to Pattern Manager must apply for an individual Account-01 login and password via MyIT as above.

# 7. Login & Navigation

The following sections describe how to login and navigate to the main NODS-Pattern Manager UI and in the dedicated Pattern Manager application.

## 7.1. Log in to NODS-PM

Pattern Manager is bundled with NODS in the NODS-Pattern Manager Web UI.

To Log into NODS-Pattern Manager web application follow these steps: 1. Click on the URL https://nods:8443/NODS/login

2. At the Log In screen enter your Telstra account-01 User ID & password (‘LAN Log in’)

3. Click Submit button

4. The Welcome to NODS Home Menu screen displays

**7.2. Home Menu Screen** Depending on user Access level, the following menu items may be available as hyperlinks to access required NODS and Pattern Manager functions:

27. Active Outage Search

28. Archive Outage Search

29. Create Outage

30. Admin Menu

31. Pattern Manager

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 9/86

017921w14 Pattern Manager 6.0 (continued)

**NOTE**: User Admin option is only visible to and accessible by L2 Access and L3 System Admin. Other users will see a blank space.

**NOTE**: Read-only users of Pattern Manager will only see and only have access to the Pattern Manager option on the Home Screen. All other options will be blanked out.

**7.3. Basic Navigation** Navigation within web NODS-PM is very simple:

32. Click the required menu hyperlink to access that option

33. Click Home hyperlink at top left at any time to return to the Home menu

34. Click Logout in top right corner to log out of NODS Pattern Manager web application

35. Click the browser back arrow to view the previous screen

**7.4. Log into Pattern Manager** At the NODS-PM Home menu, click Pattern Manager link.

Pattern Manager Home menu screen will display which provides access to the 4 Patterners and to other Pattern Manager functions. Refer Section 6.5 for more detail.

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 10/86

017921w14 Pattern Manager 6.0 (continued)

**7.5. Pattern Manager Home Menu screen** The Pattern Manager Home screen contains a menu of 6 hyperlinked options used to access all the functions of Pattern Manager:

 **CAN Patterner Version 6.0**

Click to view & analyse related fault patterns on CAN cables

 **PGS Patterner Version 6.0**

Click to view & analyse related fault patterns on PGS

 **Switch Patterner Version 6.0**

Click to view & analyse related fault patterns on Exchange Switches

 **Broadband CAN Patterner Version 2.0**

Click to view & analyse related broadband fault patterns on CAN cables

 **Priority Outage Dashboard**

Click to view & analyse Priority fault patterns & auto-created NODS

 **Pattern Manager Admin Version 2.0**

Click to view & modify fault patterner configuration settings

**7.6. Pattern Manager Navigation** Basic navigation methods within Pattern Manager are the same as those for the NODS- Pattern manager application in general. Refer section 6.3 above.

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 11/86

017921w14 Pattern Manager 6.0 (continued)

Some specific navigation options within various Pattern Manager screens will be described within the each relevant section later on in this document.

When users are on any Pattern Manager screen a ‘**Pattern Manager Home**’ link will always be available at the top centre of the screen to enable quick navigation back to the main Pattern Manager Home menu.

Users can also click the **Home** link to go right back to the main NODS-PM menu screen.

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 12/86

017921w14 Pattern Manager 6.0 (continued)

**8. CAN Patterner Version 6.0** CAN Patterner 6.0 forms and displays fault patterns related by a common CAN copper cable network element e.g. main cable, cabinet, gateway, pillar or control joint.

Click the CAN Patterner Version 6.0 link from the Pattern Manager home screen to access CAN Patterner.

**8.1. Select Region** When the CAN Patterner Version 6.0 link is clicked, the CAN Patterner Region Dashboard will open displaying the various geographical regions of the PSTN network and the number of patterned faults in each.

The Region Dashboard allows a user to:

**36.Quickly assess the relative volumes of patterned faults per region**

MO = Mode of Operations – the number of faults which must meet patterning criteria before a fault pattern will display in that region TOT = total number of patterned faults per region NEW = number of patterned faults in region not yet analysed and actioned % = percentage of patterned faults in region not yet analysed and actioned

**37.Determine the region requiring the greatest focus**

with the highest percentage of unchecked faults with the largest volume of unchecked faults

**38.Access the required region by clicking the Region name link**

Regions are state-based with metro and country areas of the same state grouped together Regions are listed geographically North to South; East to West

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 13/86

017921w14 Pattern Manager 6.0 (continued)

**8.2. Select Exchange** When a Region link is clicked, the CAN Patterner Exchange List will open displaying the various exchanges which contain fault patterns and the number of patterned faults in each.

To the right of the Exchange List a version history gives details of the changes introduced in each successive version of Pattern Manager.

The Exchange List allows a user to:

**39.Quickly assess the relative volumes of patterned faults per exchange**

tot = total number of patterned faults per exchange new = number of patterned faults in exchange not yet analysed and actioned Above the exchange list are displayed:

 Region name  ‘Printable’ link providing plain text view of region  Last refresh date  % faults unchecked in region Below the exchange list are displayed:

 Total faults in region  Number unchecked faults in region

**40.Determine the exchange requiring the greatest focus**

with the highest percentage of unchecked faults with the largest volume of unchecked faults

**41.Access the required exchange by clicking the Region name link**

Regions are listed alphabetically

**8.3. CAN Exchange screen** When an Exchange is clicked, the Exchange screen will present, displaying any related fault patterns present in the exchange along with key information to assist with initial analysis.

Exchange List remains visible at left to allow quick selection of the next exchange.

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 14/86

017921w14 Pattern Manager 6.0 (continued)

The main section of the screen displays basic details of customer faults reports which meet CAN patterning criteria (see next section 8.4).

The following details are displayed from left to right in the middle section of the screen

42. HP Hyperlinks – if the fault also appears in a fault pattern in another Patterner (e.g.

PGS) the hyperlink letter will be bold and underlined:

P (PGS) – S (Switch) – B (BB CAN)

43. Faulty FNN (Full National Number)

44. Date & Time of fault report

45. Fault Symptom code (e.g. NTN – No Tone)

46. CAN Network Elements

Main cable/mpair – Cabinet/bpair – Gateway/opair – Pillar/opair – Control Joints/opair Only the first 2 Control Joints from the exchange end are displayed If a Network Element column is blank, that type of network element is not present in that FNN’s service

NOTE: to simplify the display and make analysis easier, only CAN network elements are displayed in CAN Patterner. To see Pair Gain Systems or Switch devices present in a service or pattern it is necessary to use the hyperlinks (if active) or consult Shazbot or NPAMS.

47. ‘X’ – Service Type as recorded in NPAMS e.g. XR = ADSL service – SS = PSTN service

(see table section 14.6)

48. NODS ID

If a NODS has been created automatically by Priority Patterner or manually from within CAN Patterner, the NODS ID will display here NODS manually created in native NODS will NOT display NODS auto-created by Mozart or other external interfaces will NOT display

49. User ID of the user who has Checked off the fault pattern

50. Check List (‘Chk\_lst’) indicating determination made/action taken on fault pattern

e.g. CVH – Confirmed Volume Hold – NYV – Not Yet Volume Hold (refer table section 14.8)

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 15/86

017921w14 Pattern Manager 6.0 (continued)

**8.4. CAN Fault Patterning Rules** In CAN Patterner there are separate rules for:

 Forming a pattern of faults  Displaying a pattern of faults  Special CAN Patterning & Display Rules

**8.4.1. Form CAN fault pattern** A related fault pattern will form **in the background** in CAN Patterner whenever:

 2 or more SIIAM customer trouble reports meet the following criteria:

Symptom code is one of: CBO, CTK, EXO, ICP, NSF, NSY, NTN, NWO, OGP, PLR, SSI, SSS, TSM, UCC, ULI, ULL, VMT, CCO, COS, DTP, DTI, DTG, DTD, DTH, and...

Faults are in the same Exchange Service Area (ESA) and...

Faults are in the same Pillar or...

Where there is no pillar, in the same Control Joint (closest to the exchange) or...

Where there is no Pillar or Control Joint, in the same Gateway

Where there is no Gateway, in the same Cabinet or...

Where there is no Pillar, Control joint, Gateway or Cabinet, in the same Main Cable

and...

The O, branch or main pair is within 30 pairs of the lowest pair in the pattern

 Fault pattern will be retained for 72 hours from fault report date or for the timeframe

configured by SOM in the ‘Update Age of Pattern Data’ table of Pattern Manager Admin 2.0

 Only the valid Symptom Code and Age of Pattern Data timeframe rules can be

changed by SOM. Changes can only be made by a user with NODS-PM Super User Access Level via the Pattern Manager Admin function. All other rules are hard coded into Pattern Manager.

**NOTE**: ADSL Symptom codes for connectivity issues most indicative of exchange line problems have been added to the normal exchange line symptom code list.

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 16/86

017921w14 Pattern Manager 6.0 (continued)

**8.4.2. Display CAN fault pattern** While a basic CAN fault pattern will ALWAYS form in the background of CAN Patterner, fault patterns will only become visible in an Exchange screen in CAN Patterner when the following criteria are met:

 The above patterning rules have been met and patterns have formed in the

background

 The number of patterned faults is equal to or greater than the patterning threshold

configured by SOM in the Update Patterning Threshold’ table of Pattern Manager Admin 2.0

For example, when the Threshold Setting is set to ‘5’ a fault pattern will only display when there are 5 patterned faults in the same exchange and the same pillar, etc.

 Faults so displayed can be in the one 30 pair grouping or in a combination of 30 pair

patterns

e.g. If the Threshold was set to 5 then the rule would be met if there were:

5 faults in one 30 pair group

 E.g. P5 – pairs 3 + 9 +10 +18 +25

2 faults in one 30 pair group plus 3 faults in another 30 pair group or “2+3”:

 E.g. P5 – pairs 3 + 9 plus 74 + 87 + 91

2 faults in one 30 pair group plus 2 faults in another plus 2 faults in another or “2+2+2”:

 E.g. P5 – pairs 3 + 9 plus 51 + 56 plus 89+ 97

 Each 30 pair grouping is distinguished by a band of different background colour

 Only the 2 Control Joints (CJ) closest to the exchange are displayed

 CJ faults are only patterned on the CJ closest to the exchange. CJ 2 is display only

**8.4.3. Special CAN patterning and display rules** In addition to the above basic CAN patterning and display rules there are some special rules:

 **Pair Gain Systems**

To simplify the display, PGS will not appear in CAN patterner network elements even when present in the service

If the FNN is also in a PGS pattern, the P (PGS) hyperlink will be active

The presence of PGS can also be suspected by the following evidence:

 Access Large PGS = absence of main cable (although services fed by ‘secondary’ or ‘out of area’ PGS may have main cables and pairs)

 CAN Electronic Small PGS = presence of CJ (although straight lines can also

run through CJs)

 ADSL DSLAM = ‘x’ service type is XR or XS

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 17/86

017921w14 Pattern Manager 6.0 (continued)

 **Control Joints**

Only the first CJ closest to the exchange will be used for patterning

Only the first 2 CJs closest to the exchange will be visible

Any subsequent CJs in the cable route will be ignored for patterning and will not be visible on the screen

 **Faults with no cable details**

CAN Patterner will also display any faults which have no cable details whenever the exchange in which the fault occurs also has a valid displayed fault pattern

E.g. a case with no cable details is reported in an exchange but the current threshold for displaying fault patterns (5) has not yet been met – the no cable details case does not display. However, when a fault pattern meets the display criteria and appears in the exchange, so too will case with no cable details

Faults with no cable details may have ANY Symptom code.

Faults with no cable details generally occur for one of 5 main reasons:

 A fault has been created for a service which is working over copper network

which has now been asset transferred to Nbnco (known as ‘Continuity’ or CSLL services)

 A fault has been created for a data line where the cable details have not

been available from NPAMS to populate the Cable Details tab

 A fault has been created for the exchange or auxiliary line of an ISDN service

 A fault has been created to log a fault on multiple services for a business

 An error has occurred during case creation

The details of DummyFNN faults must be investigated in SIIAM to determine whether or not they are related to the fault pattern in the exchange.

 **DummyFNN cases**

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 18/86

017921w14 Pattern Manager 6.0 (continued)

**8.5. Analyse CAN Fault Pattern** A related fault pattern in CAN Patterner is only an indication of a potential outage. To confirm the presence of an outage to a single network element having caused all the faults in the pattern, further detailed investigation and analysis must be conducted by SOM Complex Consultants using both the information in Pattern Manager itself and in external systems.

The below sequence describes the basic general approach:

1. Investigate fault and network detail within the CAN pattern e.g. fault report times,

symptom codes and contiguity of affected pairs

2. Use hyperlinks to compare fault and network detail in other Patterners e.g. which fault

pattern gives the clearer and more compelling evidence

3. Investigate individual customer and fault details of each FNN in pattern, e.g. SIIAM case

details, history and notes

4. Run a SIIAM query to identify any related faults which did not meet patterning display

criteria

5. Investigate customer type and address patterns and pair occupancy of range in CASINO

(Clarification of Affected Services in Network Outage) tool or NPAMS

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 19/86

CAN Patterner will also display any Plant & Equipment cases with a symptom code of UCC (Underground Cable Cut) whenever the exchange in which the fault occurs also has a valid displayed fault pattern

Plant & Equipment cases with a Symptom code of UCC are created whenever a damage is reported to an underground cable.

E.g. a UCC damage case is reported in an exchange but the current threshold for displaying fault patterns (5) has not yet been met – the DummyFNN case does not display. However, when a fault pattern meets the display criteria and appears in the exchange, so too will the UCC DummyFNN case

Damage related P&E cases have an FNN formed from the text ‘DummyFNN’ and the Case number e.g. ‘DummyFNN131234567’. In CAN Patterner this FNN will appear shortened by replacing the ‘DummyFNN’ with an asterisk e.g. ‘\*131234567’

The details of DummyFNN faults must be investigated in SIIAM to determine whether or not they are related to the fault pattern in the exchange.

017921w14 Pattern Manager 6.0 (continued)

6. Check cable location and route and relative location of faults using GDD (Graphical Data

Display) network maps

7. Test services in SULTAN particularly when there is an apparent gap in the affected range

(“testing within the range”)

8. Ring CT’s or Team leaders for more information

**8.6. Create NODS from CAN Patterner** If an outage has been confirmed on a CAN network element included in the fault pattern, create a NODS notification directly from within CAN Patterner using the ‘Create NODS’ button.

This provides the quickest response to the outage and ensures that FOH consultants and customers will be advised of the outage at the earliest opportunity.

Follow these basic steps:

1. Select the affected network element e.g. Main Cable or Pillar ID using the Network

Element selection field

2. Enter the affected pair range in the Pair Selection field e.g. 1-50

3. Click the ‘Create NODS’ button

4. After a brief pause the NODS ID that has been created will display in the NODs ID

column

5. The NODS can be opened directly using this link, allowing changes to be made (e.g.

adding Parent case and CONEN IDs)

NOTE: Round out to the actual pair range of the affected cable as determined by investigation of CASINO, NPAMS and/or GDD e.g. a pattern in comprising related faults on a common Pillar P5 between 7 and 46 would typically be rounded out to the standard size of a 50 pair cable (pairs 1-50) once further investigation (e.g. in SIIAM and SULTAN) had confirmed that there were no faults beyond pair 50.

Refer also Section 14.5

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 20/86

017921w14 Pattern Manager 6.0 (continued)

**8.7. Check off CAN Fault Pattern** Once the pattern has been analysed and a determination made as to the findings and the action to be taken, each fault in the pattern must be ‘checked off’ to indicate this finding/action e.g. CVH = Confirmed Volume Hold or NYV = Not Yet Volume Hold.

Initially, when first appearing, faults in a pattern will display the SIIAM case status of the fault when it first met Pattern Manager criteria e.g. Test-Pending or Field-Open.

There are 3 methods of applying a check-off code:

1. Apply a common code to all faults in the Exchange using the Update All function

2. Apply a common code to selected faults in the Exchange using the selection boxes

3. Apply a single code to each individual fault using the individual drop down lists

To apply a check off action code to each fault in the pattern follow these basic steps:

1. Choose the most appropriate Check off method from the above e.g. if all faults in the

exchange are part of the one outage use Method 1

2. Apply the correct code

3. Click the Update or Update All buttons to save the code and update the exchange

display and the totals in the Exchange list and Region Dashboard

**NOTE**: Users with a PM Read-only Access Level can view the Check off code that has been applied by SOM but are unable to add or change Check off codes.

For detailed instructions on the above, refer section 14.7

For a table of valid check off codes and their meanings refer to section 14.8

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 21/86

017921w14 Pattern Manager 6.0 (continued)

**9. PGS Patterner Version 6.0** PGS Patterner 6.0 forms and displays fault patterns related by a common Pair Gain System network element e.g. Access Core Large PGS or CAN Electronic Small PGS.

Click the PGS Patterner Version 6.0 link from the Pattern Manager home screen to access PGS Patterner.

**9.1. Select Region** When the PGS Patterner Version 6.0 link is clicked, the PGS Patterner Region Dashboard will open displaying the various geographical regions of the PSTN network and the number of patterned faults in each.

The Region Dashboard allows a user to:

**51.Quickly assess the relative volumes of patterned faults per region**

MO = Mode of Operations – the number of faults which must meet patterning criteria before a fault pattern will display in that region TOT = total number of patterned faults per region NEW = number of patterned faults in region not yet analysed and actioned % = percentage of patterned faults in region not yet analysed and actioned

**52.Determine the region requiring the greatest focus**

with the highest percentage of unchecked faults with the largest volume of unchecked faults

**53.Access the required region by clicking the Region name link**

Regions are state-based with metro and country areas of the same state grouped together Regions are listed geographically North to South; East to West

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 22/86

017921w14 Pattern Manager 6.0 (continued)

**9.2. Select Exchange** When a Region link is clicked, the PGS Patterner Exchange List will open displaying the various exchanges which contain fault patterns and the number of patterned faults in each.

To the right of the Exchange List a version history gives details of the changes introduced in each successive version of Pattern Manager.

The Exchange List allows a user to:

**54.Quickly assess the relative volumes of patterned faults per exchange**

tot = total number of patterned faults per exchange new = number of patterned faults in exchange not yet analysed and actioned Above the exchange list are displayed:

 Region name  ‘Printable’ link providing plain text view of region  Last refresh date  % faults unchecked in region Below the exchange list are displayed:

 Total faults in region  Number unchecked faults in region

**55.Determine the exchange requiring the greatest focus**

with the highest percentage of unchecked faults with the largest volume of unchecked faults

**56.Access the required exchange by clicking the Region name link**

Regions are listed alphabetically

**9.3. PGS Exchange screen** When an Exchange is clicked, the Exchange screen will present, displaying any related fault patterns present in the exchange along with key information to assist with initial analysis.

Exchange List remains visible at left to allow quick section of the next exchange.

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 23/86

017921w14 Pattern Manager 6.0 (continued)

The main section of the screen displays basic details of customer faults reports which meet PGS patterning criteria (see next section 9.4).

The following details are displayed from left to right in the middle section of the screen

57. HP Hyperlinks – if the fault also appears in a fault pattern in another Patterner (e.g.

PGS) the hyperlink letter will be bold and underlined:

C (CAN) – S (Switch) – B (BB CAN)

58. Faulty FNN (Full National Number)

59. Date & Time of fault report

60. Fault Symptom code (e.g. NTN – No Tone)

PGS & basic CAN Network Elements

Access Core large PGS ID – Type – P/S/C (Panel/Slot/Channel) e.g. CMUX or RIM

Main cable/mpair – Cabinet/bpair – Gateway/opair – Pillar/opair

CAN Electronic small PGS ID – Type – P/S/C e.g. 6/16 or RAM 8

If a Network Element column is blank, that type of network element is not present in that FNNs service

NOTE: to simplify the display and make analysis easier, only Access and CAN Electronic PGS and basic CAN network elements are displayed in PGS Patterner. To see other CAN or Switch devices present in a service or pattern it is necessary to use the hyperlinks (if active) or consult Shazbot or NPAMS.

61. ‘X’ – Service Type as recorded in NPAMS e.g. XR = ADSL service – SS = PSTN service

(see table section 14.6)

62. NODS ID

If a NODS has been created automatically by Priority Patterner or manually from within CAN Patterner, the NODS ID will display here NODS manually created in native NODS will NOT display NODS auto-created by Mozart or other external interfaces will NOT display

63. User ID of the user who has Checked off the fault pattern

64. Check List (‘Chk\_Lst’) indicating determination made/action taken on fault pattern

e.g. CVH – Confirmed Volume Hold – NYV – Not Yet Volume Hold (refer table section 14.8)

**NOTE**:

The left hand PGS columns display details for Access Core Large PGS e.g. CMUX, RIM, RCM, DCS20 and SSNMUX

The right hand PGS columns display details for CAN Electronic Small PGS e.g. 2/4 DPGS, RAM 8, 6/15-16, 16/96, SCaDS

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 24/86

017921w14 Pattern Manager 6.0 (continued)

ADSL DSLAM PGS do not display in PGS patterner – they display in BB CAN Patterner.

**9.4. PGS Fault Patterning Rules** In PGS Patterner there are separate rules for:

 Forming a pattern of faults  Displaying a pattern of faults  Special PGS Rules

**9.4.1. Form PGS fault pattern** A related fault pattern will form **in the background** in PGS Patterner whenever:

 2 or more SIIAM customer trouble reports meet the following criteria:

Symptom code is one of: CBL, CBO, CCO, CEF, COS, CTK, EXO, ICP, NSF, NSY, NTN, NWO, OGP, TSM, UCC, VMT, DTP, DTD, DTG, DTI, and...

Faults have a PGS type of:

 Access Core (CMUX, SSNMUX, RIM, RCM or DCS20) and/or...

 CAN Electronic (1+4W, 2DPGS, 4DPGS, RAM8 Ph1, RAM8 Ph2, RAM8V90,

MLC 6/15, 6/16, 16/96 or SCADS) and...

Faults are in the same ESA and...

Faults are in the same PGS Id

 When faults contain both Access Core and CAN Electronic PGS the pattern will be

formed on the PGS Id with the greatest number of faults

 Where there are equal numbers of faults with the same two PGS Id (i.e. Access Core

and CAN Electronic), the pattern will be formed on the Access Core PGS

 Faults are retained in a pattern for 72 hours from report date.

 Fault pattern will be retained for 72 hours from fault report date or for the timeframe

configured by SOM in the ‘Update Age of Pattern Data’ table of Pattern Manager Admin 2.0

 Only the valid Symptom Code and Age of Pattern Data timeframe rules can be

changed by SOM. Changes can only be made by a user with NODS-PM Super User

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 25/86

017921w14 Pattern Manager 6.0 (continued)

Access Level via the Pattern Manager Admin function. All other rules are hard coded into Pattern Manager.

**NOTE:** Fault patterns are NOT formed on other PGS types (e.g. DSLAM or CAN Radio)

**NOTE**: ADSL Symptom codes for connectivity issues most indicative of exchange line problems have been added to the normal exchange line symptom code list.

**9.4.2. Display PGS fault pattern** While a basic PGS fault pattern will ALWAYS form in the background of PGS Patterner, fault patterns will only become visible in an Exchange screen in PGS Patterner when the following criteria are met:

 The above patterning rules have been met and patterns have formed in the

background

 The number of patterned faults is equal to or greater than the patterning threshold

configured by SOM in the Update Patterning Threshold’ table of Pattern Manager Admin 2.0 for PGS

For example, when the Threshold Setting is set to ‘4’ a fault pattern will only display when there are 4 patterned faults in the same exchange and the same PGS ID, etc.

**9.4.3. CMUX patterning & display rules** Due the ability of CMUX (Customer Multiplexer) PGS to perform various network roles for a service according to the card and port type installed, PGS patterner uses some additional rules for CMUX patterning and display:

**CMUX Master and Slave types**

 CMUX are complex Pair Gain Systems which can function in a variety of ways and

configurations to deliver a combination of telephony (‘POTS’ – Plain Old Telephone Service), broadband (ADSL), ISDN and/or narrowband special services (data lines).

 CMUX have 2 main physical configurations:

**Master**

 An exchange based Network Unit (NU) feeding a remote based Access Unit (AU) either in the street or in a multi-storey building. Called a ‘master’ unit in common terminology.

 Appear in Pattern Manager with a PGS ID like “E04003”

**Slave Unit**

 An exchange based Network Unit (NU) feeding a series of remote Slave

Units each with its own remote unit (AU). Each Slave Unit supplies services to a different geographical locality.

 Slave Units appear separately in Pattern Manager with PGS ID like

‘E04003/2, E04003/3, etc.’

 PGS Patterner 6.0 forms and displays patterns by treating Slave Units as a separate

PGS Id: 4 faults each on a different Slave of the one PGS Id e.g. E7/2, E7/3, E7/5 and E7/7

will NOT form a valid pattern

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 26/86

017921w14 Pattern Manager 6.0 (continued)

**CMUX Network Role**

 CMUX may function in a customer’s service as either Access Core to provide exchange

service (i.e. dial tone) in lieu of copper main cable or as DSLAM to provide ADSL internet service or both depending on the type of card or port used.

 In PGS Patterner 6.0 CMUX faults pattern and display according to the role the CMUX

plays in providing customer service as indicated by the NPAMS Port type (refer Table 4):

Access Core (PSTN or ISDN)

DSLAM (ADSL)

Combination (Access Core and ADSL)

**Table CMUX network role and Port/card types**

**Role Port (card) Type** Access Core (PSTN) only POTS\*

Access Core (ISDN) only 2B1Q

DSLAM (ADSL) only ADSL\*

Combination (Access Core + DSL) ADSP\*, ADSLP\*

 PGS Patterner will form a fault pattern on a CMUX whenever the card/port type is

POTS, 2B1Q, ADSP or ADSLP i.e. Access Core or combination Access Core/DSL.

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 27/86

4 faults on the same slave unit e.g. E7/6, E7/6, E7/6 and E7/6 will form a valid pattern

Outages affecting multiple Slave Units will not appear until the threshold is reached for one of the affected Slave Units. As the threshold is reached for other Slave Units they too will appear – as separate colour-differentiated patterns – providing a clue to the widespread nature of the outage

017921w14 Pattern Manager 6.0 (continued)

 PGS Patterner will NOT form fault patterns on a CMUX where the card/port type is ADSL (i.e. functioning as DSLAM in service only) although these faults may be included in otherwise valid patterns in which case the CMUX ADSL component will be “hidden’ in the right hand PGS columns (as with other types of DSLAM) but will be indicated by the presence of an ‘XR’ or ‘XS’ ADSL ‘X’ code. These faults may also appear in other Patterners e.g. BB CAN Patterner

 Sometimes 2 different CMUX will be deployed to provide service to a customer FNN – one to provide telephony (‘POTS’) and another to provide Broadband (‘ADSL’) e.g. CMUX E7 (using ‘POTS’ card) and CMUX E2 (using ‘ADSL2’ card)

In these instances PGS Patterner will pattern on the Access Core CMUX and display it in the left hand PGS columns

 Sometimes different cards within the same CMUX will be used to provide service to a

customer e.g. CMUX E7 (‘POTS’ card) and CMUX E7 (separate ‘ADSL2’ card)

In these instances PGS Patterner will pattern on and display the POTS component (Panel/Slot/Channel of ‘POTS’ card) of the CMUX in the left hand PGS columns

**CMUX DSLAM catastrophic failure**

Catastrophic failure of a CMUX which is only providing ADSL broadband service can **in rare circumstances** result in a loss of telephony service along with internet.

As PGS Patterner does not form or display patterns on faults where the CMUX is only providing ADSL (i.e. via an ADSL\* card/port) such an outage may not be immediately obvious as a PSTN outage on that CMUX, although it is highly likely that in the event of an extensive failure the following patterns would be visible:

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 28/86

017921w14 Pattern Manager 6.0 (continued)

 PGS Patterner – a pattern BOTH PSTN (‘NTN’) and ADSL (‘DT\*”) on the CMUX POTS, RIM or other Access PGS which is providing the Exchange Access component of the customers’ services

 CAN Patterner – pattern(s) BOTH PSTN (‘NTN’) and ADSL (‘DT\*”) on common Pillar,

Cabinet or Main Cable

 BB CAN Patterner – pattern of ADSL faults on common Pillar, Cabinet or Main Cable

displaying the failed CMUX in the right hand DSLAM column

 Switch Patterner – pattern of BOTH PSTN (‘NTN’) and ADSL (‘DT\*”) faults formed on

common Switch Id with Device type ‘LIG’ or ‘xxV’ e.g. ‘30V’

SOM staff should contact SAO to confirm PSTN impact if in doubt.

**9.4.4. PGS in secondary exchange** Sometimes services are delivered by employing an Access PGS in a larger ‘secondary’ exchange to provide exchange access to a smaller sub-exchange. This is most commonly used in rural and remote areas. Typically the Remote Unit (RU) of the PGS will be co-located with exchange MDF in the sub-exchange building where the local main pairs will connect to the PGS C pairs. The RU then links back to the larger secondary exchange via its fibre link to the Exchange Unit (EU) of the PGS.

This arrangement will result in the customer and their copper cable pairs (e.g. main cable and pillar) belonging to one exchange (e.g. LOST Lost River) and the Access PGS ‘feeding’ their service being in another exchange (e.g. GLBN Goulburn)

Pattern Manager will display this like:

 In **PGS Patterner**:

Pattern will form in exchange to which the customer and main cable belongs

PGS will display in this pattern without any indication of belonging to another exchange

The usual clue though is the presence of BOTH Access PGS AND Main Cable (normally an Access PGS REPLACES main cable)

 In **CAN Patterner**:

Pattern will form in exchange to which the customer and main cable belongs

A clue may be the presence of BOTH a Main Cable AND an active hyperlink to PGS Patterner (providing a pattern has formed in PGS Patterner as well)

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 29/86

017921w14 Pattern Manager 6.0 (continued)

SOM Complex Consultants will need to be alert to these clues and to confirm the presence of a ‘secondary exchange’ PGS by checking cable details in Shazbot.

A native NODS will need to be loaded on BOTH the PGS ‘secondary’ exchange and the customer exchange.

Priority Patterner (and Mozart CONEN to NODS automation) will automatically load NODS in this way for these scenarios.

**9.4.5. Special PGS patterning and display rules** In addition to the above basic PGS patterning and display rules there are some special rules:

 **Display of PGS types**

Only Access Core or CAN Electronic PGS types are displayed in PGS Patterner.

If a FNN in a PGS pattern contains another type of PGS e.g. FTTP, DSLAM or CAN Radio these PGS will not be displayed.

The presence of other types of PGS can be only identified by the following clues:

 The right hand PGS column is blank AND...

 An ADSL ‘X’ code such as ‘XR’ or ‘XS’ will indicate the presence of a DSLAM

 A remote or island exchange (e.g. THUT Thursday Island) may include a CAN

Radio PGS

 **Limitation on number of PGS displayed**

PGS Patterner 6.0 screen has only 2 sets of PGS display columns – one on the left coded to display Access Core PGS and another on the right to display CAN Electronic PGS.

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 30/86

017921w14 Pattern Manager 6.0 (continued)

This means that (comparatively rare) instances of where there are 2 Access Core PGS + 1 Small PGS or where there is one Access PGS and 2 Small PGS, one of the PGS will NOT be displayed. In these cases PGS Patterner will pattern and display the PGS closest to the exchange.

**9.5. Analyse PGS Fault Pattern** A related fault pattern in PGS Patterner is only an indication of a potential outage. To confirm the presence of an outage to a single network element having caused all the faults in the pattern, further detailed investigation and analysis must be conducted by SOM Complex Consultants using both the information in Pattern Manager itself and in external systems.

The below sequence describes the basic general approach:

1. Check CONEN for an Network Incident on the affected Access Large PGS

2. Check ‘! SOM Production’ mailbox for an email advice of Small PGS outage

3. Investigate fault and network detail within the PGS pattern e.g. fault report times,

symptom codes and common Panel and Slot

4. Use hyperlinks to compare fault and network detail in other Patterners e.g. which fault

pattern gives the clearer and more compelling evidence

5. Investigate individual customer and fault details of each FNN in pattern, e.g. SIIAM case

details, history and notes

6. Run a SIIAM query to identify any related faults which did not meet patterning display

criteria

7. Investigate customer type and address patterns in CASINO (Clarification of Affected

Services in Network Outage) tool

8. Check relative location of faults using GDD (Graphical Data Display) network maps

9. Ring CT’s or GOC for more information

**9.6. Create NODS from PGS Patterner** If an outage has been confirmed on a PGS network element included in the fault pattern, create a NODS notification directly from within PGS Patterner using the ‘Create NODS’ button.

This provides the quickest response to the outage and ensures that FOH consultants and customers will be advised of the outage at the earliest opportunity.

Follow these basic steps:

1. Select the affected network element e.g. large or Small PGS ID using the Network

Element selection field

2. Enter the affected Panel and or Panel and Slot range in the Panel & Slot Selection fields

e.g. Panel 3 Slots 1-3

3. Click the ‘Create NODS’ button

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 31/86

017921w14 Pattern Manager 6.0 (continued)

4. After a brief pause the NODS ID that has been created will display in the NODs ID

column

5. The NODS can be opened directly using this link, allowing changes to be made (e.g.

adding Parent case and CONEN IDs)

Refer also Section: 14.5

**9.7. Check off PGS Fault Pattern** Once the pattern has been analysed and a determination made as to the findings and the action to be taken, each fault in the pattern must be ‘checked off’ to indicate this finding/action e.g. CVH = Confirmed Volume Hold or NYV = Not Yet Volume Hold.

Initially, when first appearing, faults in a pattern will display the SIIAM case status of the fault when it first met Pattern Manager criteria e.g. Test-Pending or Field-Open.

There are 3 methods of applying a check-off code:

1. Apply a common code to all faults in the Exchange using the Update All function

2. Apply a common code to selected faults in the Exchange using the selection boxes

3. Apply a single code to each individual fault using the individual drop down lists

To apply a check off action code to each fault in the pattern follow these basic steps:

1. Choose the most appropriate Check off method from the above e.g. if all faults in the

exchange are part of the one outage use Method 1

2. Apply the correct code

3. Click the Update or Update All buttons to save the code and update the exchange

display and the totals in the Exchange list and Region Dashboard

**NOTE**: Users with a PM Read-only Access Level can view the Check off code that has been applied by SOM but are unable to add or change Check off codes.

For detailed instructions on the above, refer section 14.7

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 32/86

017921w14 Pattern Manager 6.0 (continued)

For a table of valid check off codes and their meanings refer to section 14.8

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 33/86

017921w14 Pattern Manager 6.0 (continued)

**10. Switch Patterner Version 6.0** Switch Patterner 6.0 forms and displays fault patterns related by a common Exchange Switching network element e.g. AXE or System 12 switching technology.

Click the Switch Patterner Version 6.0 link from the Pattern Manager Home screen to access Switch Patterner.

**10.1. Select Region** When the Switch Patterner Version 6.0 link is clicked, the Switch Patterner Region Dashboard will open displaying the various geographical regions of the PSTN network and the number of patterned faults in each.

The Region Dashboard allows a user to:

**65.Quickly assess the relative volumes of patterned faults per region**

MO = Mode of Operations – the number of faults which must meet patterning criteria before a fault pattern will display in that region TOT = total number of patterned faults per region NEW = number of patterned faults in region not yet analysed and actioned % = percentage of patterned faults in region not yet analysed and actioned

**66.Determine the region requiring the greatest focus**

with the highest percentage of unchecked faults with the largest volume of unchecked faults

**67.Access the required region by clicking the Region name link**

Regions are state-based with metro and country areas of the same state grouped together Regions are listed geographically North to South; East to West

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 34/86

017921w14 Pattern Manager 6.0 (continued)

**10.2. Select Node** When a Region link is clicked, the Switch Patterner Node List will open displaying the various AXE or S12 Exchange Nodes which contain fault patterns and the number of patterned faults in each.

**NOTE**: Unlike the other Patterners, Switch patterner organises related fault patterns by AXE or S12 Node. A Node is a ‘master’ exchange which controls the operation of several smaller local exchanges.

The actual exchange to which a Switch Pattern belongs can be seen within the Node pattern screen (see section 10.3 below)

To the right of the Node List a version history gives details of the changes introduced in each successive version of Pattern Manager.

The Node List allows a user to:

**68.Quickly assess the relative volumes of patterned faults per Node**

tot = total number of patterned faults per node new = number of patterned faults in node not yet analysed and actioned Above the node list are displayed:

 Region name  ‘Printable’ link providing plain text view of region  Last refresh date  % faults unchecked in region Below the exchange list are displayed:

 Total faults in region  Number unchecked faults in region

**69.Determine the Node requiring the greatest focus**

with the highest percentage of unchecked faults with the largest volume of unchecked faults

**70.Access the required Node by clicking the Node link**

Regions are listed alphabetically

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 35/86

017921w14 Pattern Manager 6.0 (continued)

**10.3. Switch Node screen** When a Node is clicked, the Node screen will present, displaying any related fault patterns present in the node along with key information to assist with initial analysis.

Node List remains visible at left to allow quick selection of the next node.

The main section of the screen displays basic details of customer faults reports which meet Switch patterning criteria (see next section 10.4).

The following details are displayed from left to right in the middle section of the screen

71. HP Hyperlinks – if the fault also appears in a fault pattern in another Patterner (e.g.

PGS) the hyperlink letter will be bold and underlined:

C (CAN) - P (PGS) – B (BB CAN)

72. Faulty FNN (Full National Number)

73. Date & Time of fault report

74. Fault Symptom code (e.g. NTN – No Tone)

75. Exchange to which Switch belongs

76. Primary CAN Network Elements

Main Cable ID – if any

CAN Distribution element closest to the exchange e.g. Cabinet (‘C’), Gateway (‘G’), Pillar (‘P’) or Control Joint (‘CJ’)

**NOTE**: to simplify the display and make analysis easier, only Switch network elements are displayed in Switch Patterner plus the exchange and the primary CAN elements. To see Pair Gain Systems or other CAN elements present in a service or pattern it is necessary to use the hyperlinks (if active) or consult Shazbot or NPAMS.

77. Switch Elements:

**AXE Switch**

 RSS (Remote Switching Stage) Switch ID  LI (line Interface) AXE Device Type  LI number  NPAMS 128 pair grouping

**System 12 Switch**

 RSA (Remote Subscriber Access) Switch ID  Network Address  EN number  Network Address group

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 36/86

017921w14 Pattern Manager 6.0 (continued)

78. NODS ID

If a NODS has been created automatically by Priority Patterner or manually from within Switch Patterner, the NODS ID will display here NODS manually created in native NODS will NOT display NODS auto-created by Mozart or other external interfaces will NOT display

79. NODS category e.g. SA (CAN) or SB (Network)

80. NODS status e.g. A (Active) or (Ceased)

81. User ID of the user who has Checked off the fault pattern

82. Check List (‘Chk Lst’) indicating determination made/action taken on fault pattern

e.g. CVH – Confirmed Volume Hold – NYV – Not Yet Volume Hold (refer table section 14.8)

**NOTE**: ‘X’ Service Type does not display in Switch Patterner

**10.4. Switch Fault Patterning Rules** In Switch Patterner there are separate rules for:

 Forming a pattern of faults

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 37/86

017921w14 Pattern Manager 6.0 (continued)

 Displaying a pattern of faults  Special patterning & display rules

**10.4.1. Form Switch fault pattern** A related fault pattern will form **in the background** in Switch Patterner whenever:

 2 or more SIIAM customer trouble reports meet the following criteria:

Any Symptom code (either PSTN or ADSL) and...

Faults are in the same Node and...

Faults are in the same Switch ID and...

Faults are in the same Group (AXE 128 LI grouping or S12 Network address)

and...

Faults have been reported within 24 hours of earliest fault in group

 Fault pattern will be retained for 72 hours from fault report date or for the timeframe

configured by SOM in the ‘Update Age of Pattern Data’ table of Pattern Manager Admin 2.0

 Only the valid Age of Pattern Data timeframe rules can be changed by SOM. Changes

can only be made by a user with NODS-PM Super User Access Level via the Pattern Manager Admin function. All other rules are hard coded into Pattern Manager.

**10.4.2. Display Switch fault pattern** While a basic CAN fault pattern will ALWAYS form in the background of Switch Patterner, fault patterns will only become visible in a Node screen in Switch Patterner when the following criteria are met:

 The above patterning rules have been met and patterns have formed in the

background

 The number of patterned faults is equal to or greater than the patterning threshold

configured by SOM in the Update Patterning Threshold’ table of Pattern Manager Admin 2.0

For example, when the Threshold Setting is set to ‘5’ a fault pattern will only display when there are 5 patterned faults in the same Switch ID and same Group, etc.

 Each different Switch and Magazine Group pattern will be distinguished by a different

band of background colour

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 38/86

017921w14 Pattern Manager 6.0 (continued)

**10.5. Analyse Switch Fault Pattern** A related fault pattern in Switch Patterner is only an indication of a potential outage. To confirm the presence of an outage to a single network element having caused all the faults in the pattern, further detailed investigation and analysis must be conducted by SOM Complex Consultants using both the information in Pattern Manager itself and in external systems.

The below sequence describes the basic general approach:

1. Check CONEN for an network Incident on the affected Access Large PGS

2. Investigate fault and network detail within the PGS pattern e.g. fault report times,

symptom codes and common Panel and Slot

3. Use hyperlinks to compare fault and network detail in other Patterners e.g. which fault

pattern gives the clearer and more compelling evidence

4. Investigate individual customer and fault details of each FNN in pattern, e.g. SIIAM case

details, history and notes

5. Run a SIIAM query to identify any related faults which did not meet patterning display

criteria

6. Investigate customer type and address patterns in CASINO (Clarification of Affected

Services in Network Outage) tool

7. Ring GOC or CT’s for more information

**10.6. Create NODS from Switch Patterner** If an outage has been confirmed by GOC on a Switch network element included in the fault pattern, create a NODS notification directly from within Switch Patterner using the ‘Create NODS’ button.

This provides the quickest response to the outage and ensures that FOH consultants and customers will be advised of the outage at the earliest opportunity.

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 39/86

017921w14 Pattern Manager 6.0 (continued)

Follow these basic steps:

1. Select the affected network element i.e. Switch ID and Switch Type using the Network

Element selection fields

2. Enter the affected LI/EN range in the LI/EN Selection field e.g. 1-256

3. Click the ‘Create NODS’ button

4. After a brief pause the NODS ID that has been created will display in the NODs ID

column

5. The NODS can be opened directly using this link, allowing changes to be made (e.g.

adding Parent case and CONEN IDs)

NOTE: The exact LI or EN range of an affected AXE or S12 Switch ID and/or magazine can be determined by using the JC08 ‘Display FF/LI (Digital) query in NPAMS.

Refer also Section: 14.5

**10.7. Check off Switch Fault Pattern** Once the pattern has been analysed and a determination made as to the findings and the action to be taken, each fault in the pattern must be ‘checked off’ to indicate this finding/action e.g. CVH = Confirmed Volume Hold or NYV = Not Yet Volume Hold.

Initially, when first appearing, faults in a pattern will display the SIIAM case status of the fault when it first met Pattern Manager criteria e.g. Test-Pending or Field-Open.

There are 3 methods of applying a check-off code:

1. Apply a common code to all faults in the Exchange using the Update All function

2. Apply a common code to selected faults in the Exchange using the selection boxes

3. Apply a single code to each individual fault using the individual drop down lists

To apply a check off action code to each fault in the pattern follow these basic steps:

1. Choose the most appropriate Check off method from the above e.g. if all faults in the

exchange are part of the one outage use Method 1

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 40/86

017921w14 Pattern Manager 6.0 (continued)

2. Apply the correct code

3. Click the Update or Update All buttons to save the code and update the exchange

display and the totals in the Exchange list and Region Dashboard

For detailed instructions on the above, refer section 14.7

For a table of valid check off codes and their meanings refer to section 14.8

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 41/86

017921w14 Pattern Manager 6.0 (continued)

**11. Broadband Patterner Version 2.0** Broadband (BB) CAN Patterner 2.0 forms and displays broadband fault patterns related by a common CAN copper cable network element e.g. main cable, cabinet, gateway, or pillar.

Click the BB CAN Patterner Version 2.0 link from the Pattern Manager home screen to access BB CAN Patterner.

**11.1. Select Region** When the BB CAN Patterner Version 2.0 link is clicked, the BB CAN Patterner Region Dashboard will open displaying the various geographical regions of the PSTN network and the number of patterned faults in each.

The Region Dashboard allows a user to:

**83.Quickly assess the relative volumes of patterned faults per region**

MO = Mode of Operations – the number of faults which must meet patterning criteria before a fault pattern will display in that region TOT = total number of patterned faults per region NEW = number of patterned faults in region not yet analysed and actioned % = percentage of patterned faults in region not yet analysed and actioned

**84.Determine the region requiring the greatest focus**

with the highest percentage of unchecked faults with the largest volume of unchecked faults

**85.Access the required region by clicking the Region name link**

Regions are state-based with metro and country areas of the same state grouped together Regions are listed geographically North to South; East to West

**11.2. Select Exchange** When a Region link is clicked, the BB CAN Patterner Exchange List will open displaying the various exchanges which contain fault patterns and the number of patterned faults in each.

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 42/86

017921w14 Pattern Manager 6.0 (continued)

To the right of the Exchange List a version history gives details of the changes introduced in each successive version of Pattern Manager.

The Exchange List allows a user to:

**86.Quickly assess the relative volumes of patterned faults per exchange**

tot = total number of patterned faults per exchange new = number of patterned faults in exchange not yet analysed and actioned Above the exchange list are displayed:

 Region name  ‘Printable’ link providing plain text view of region  Last refresh date  % faults unchecked in region Below the exchange list are displayed:

 Total faults in region  Number unchecked faults in region

**87.Determine the exchange requiring the greatest focus**

with the highest percentage of unchecked faults with the largest volume of unchecked faults

**88.Access the required exchange by clicking the Exchange link**

Exchanges are listed alphabetically

**11.3. BB CAN Exchange screen** When an Exchange is clicked, the Exchange screen will present, displaying any related fault patterns present in the exchange along with key information to assist with initial analysis.

Exchange List remains visible at left to allow quick selection of the next exchange.

The main section of the screen displays basic details of customer ADSL faults reports which meet BB CAN patterning criteria (see next section 11.4).

The following details are displayed from left to right in the middle section of the screen

89. HP Hyperlinks – if the fault also appears in a fault pattern in another Patterner (e.g.

PGS) the hyperlink letter will be bold and underlined:

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 43/86

017921w14 Pattern Manager 6.0 (continued)

C (CAN) – P (PGS) - S (Switch)

90. Faulty FNN (Full National Number)

91. Date & Time of fault report

92. Fault Symptom code (e.g. DTG - NSYN – No Sync)

93. PGS,DSLAM & basic CAN Network Elements

Access Core large PGS ID – Type – P/S/C (Panel/Slot/Channel) e.g. CMUX or RIM Main cable/mpair – Cabinet/bpair – Gateway/opair – Pillar/opair DSLAM (Digital Subscriber Line Access Multiplexer) ID – Type – P/S/C e.g. AM35 If a Network Element column is blank, that type of network element is not present in that FNNs service

NOTE: to simplify the display and make analysis easier, only Access and DSLAM PGS and basic CAN network elements are displayed in PGS Patterner. To see other CAN or Switch devices present in a service or pattern it is necessary to use the hyperlinks (if active) or consult Shazbot or NPAMS.

94. ‘X’ – Service Type as recorded in NPAMS e.g. XR = ADSL service – SS = PSTN service

(see table section x.x)

95. NODS ID

If a NODS has been created automatically by Priority Patterner or manually from within CAN Patterner, the NODS ID will display here NODS manually created in native NODS will NOT display NODS auto-created by Mozart or other external interfaces will NOT display

96. User ID of the user who has Checked off the fault pattern

97. Check List (‘Chk Lst’) indicating determination made/action taken on fault pattern

e.g. CVH – Confirmed Volume Hold – NYV – Not Yet Volume Hold (refer table section 14.8)

**NOTE**:

The left hand PGS columns display details for Access Core Large PGS e.g. CMUX, RIM, RCM, DCS20 and SSNMUX

The right hand PGS columns display details for DSLAM PGS e.g. AM31, AM35, ASAM, ISAM and CMUX (with ADSL port/card type)

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 44/86

017921w14 Pattern Manager 6.0 (continued)

**11.4. BB CAN Fault Patterning Rules** In CAN Patterner there are separate rules for:

 Forming a pattern of faults  Displaying a pattern of faults  CMUX Display rules  Special patterning & display rules

**11.4.1. Form BB CAN fault pattern** A related fault pattern will form **in the background** in BB CAN Patterner whenever:

 2 or more SIIAM customer trouble reports meet the following criteria:

Symptom code is one of: DTG, DTI, URS, SSI, SSS, DTA, DTB, DTC, DTD, DTE, DTF, DTH, DTJ, DTK, DTL, DTM, DTN, DTO, DTP, DTQ, DTR, DTS, DTT, DTU, DTV, DTW, DTX, ULI, and...

Faults are in the same Exchange Service Area (ESA) and...

Faults are in the same Pillar or...

Where there is no Pillar, in the same Gateway

Where there is no Gateway, in the same Cabinet or...

Where there is no Pillar, Gateway or Cabinet, in the same Main Cable and...

The O, branch or main pair is within 30 pairs of the lowest pair in the pattern

 Fault pattern will be retained for 72 hours from fault report date or for the timeframe

configured by SOM in the ‘Update Age of Pattern Data’ table of Pattern Manager Admin 2.0

 Only the valid Symptom Code and Age of Pattern Data timeframe rules can be

changed by SOM. Changes can only be made by a user with NODS-PM Super User Access Level via the Pattern Manager Admin function. All other rules are hard coded into Pattern Manager.

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 45/86

017921w14 Pattern Manager 6.0 (continued)

**11.4.2. Display BB CAN fault pattern** While a basic BB CAN fault pattern will ALWAYS form in the background of BB CAN Patterner, fault patterns will only become visible in an Exchange screen in BB CAN Patterner when the following criteria are met:

 The above patterning rules have been met and patterns have formed in the

background

 The number of patterned faults is equal to or greater than the patterning threshold

configured by SOM in the Update Patterning Threshold’ table of Pattern Manager Admin 2.0

For example, when the Threshold Setting is set to ‘5’ a fault pattern will only display when there are 5 patterned faults in the same exchange and the same pillar, etc.

 Faults so displayed can be in the one 30 pair grouping or in a combination of 30 pair

patterns

e.g. If the Threshold was set to 5 then the rule would be met if there were:

5 faults in one 30 pair group

 E.g. P5 – pairs 3 + 9 +10 +18 +25

2 faults in one 30 pair group plus 3 faults in another 30 pair group or “2+3”:

 E.g. P5 – pairs 3 + 9 plus 74 + 87 + 91

2 faults in one 30 pair group plus 2 faults in another plus 2 faults in another or “2+2+2”:

 E.g. P5 – pairs 3 + 9 plus 51 + 56 plus 89+ 97

 Each 30 pair grouping is distinguished by a band of different background colour

**11.4.3. CMUX display rules in BB CAN Patterner** There are special rules for the display of CMUX in BB CAN patterner:

CMUX will display differently in BB CAN Patterner depending on the network roles they play in providing customers’ services.

 **CMUX provides Access Core**

will display in the left hand PGS column when the CMUX is performing an Access Core using a POTS or ISDN 2B1Q port/card or combined Access/DSLAM role using a combination (‘combo’) port/card

 **CMUX provides ADSL DSLAM**

will display in the right hand PGS column when the CMUX is performing a purely DSLAM role using an ADSL port/card

Refer PGS Section 9.4.3 for more detail

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 46/86

017921w14 Pattern Manager 6.0 (continued)

**11.4.4. Special patterning & display rules** There are some special patterning and display rules in BB CAN Patterner rules for the display of CMUX in BB CAN Patterner:

 **Control Joints**

Control Joints are not considered for patterning and are not displayed

 **ULL/SSS services**

ULL/SSS services for other Service Providers may appear in BB CAN Patterner but do not utilise a Telstra DSLAM device. The right hand DSLAM PGS column will always appear blank for ULL/SSS services

 **Non-Broadband services appearing in BB CAN Patterner**

Some non-Broadband services are also reported using a DTP (Data Transmission Problem) symptom code but this is not an ADSL code.

These may be ISDN, Faxstream or Dial-up Internet. These will also appear in BB CAN Patterner. In these cases, the right hand DSLAM PGS columns will always be blank and the ‘X’ code will be non-ADSL (e.g. ‘SS’ or ‘RA’)

**11.5. Analyse BB CAN Fault Pattern** A related fault pattern in BB CAN Patterner is only an indication of a potential outage. To confirm the presence of an outage to a single network element having caused all the faults in the pattern, further detailed investigation and analysis must be conducted by SOM Complex Consultants using both the information in Pattern Manager itself and in external systems.

A primary method of determining if the BB CAN pattern is more likely to indicate a CAN issue versus a DSLAM issue is to check the right hand PGS column:

 Fault pattern with common DSLAM is more likely to be due to a broadband issue

 Fault pattern with multiple DSLAMs may indicate a CAN issue – investigate further

1. Check CONEN for a network Incident on the affected DSLAM

2. Check WFC Outage board for a known ADSL outage on the affected DSLAM

3. Investigate fault and network detail within the BB CAN pattern e.g. fault report times,

symptom codes and contiguity of affected pairs and whether services are provided over common DSLAM or not.

4. Use hyperlinks to compare fault and network detail in other Patterners e.g. which fault

pattern gives the clearer and more compelling evidence

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 47/86

017921w14 Pattern Manager 6.0 (continued)

5. Investigate individual customer and fault details of each FNN in pattern, e.g. SIIAM case

details, history and notes

6. Run a SIIAM query to identify any related faults which did not meet patterning display

criteria

7. Investigate customer type and address patterns and pair occupancy of range in CASINO

(Clarification of Affected Services in Network Outage) tool or NPAMS

8. Check cable location and route and relative location of faults using GDD (Graphical Data

Display) network maps

9. Test services in SULTAN or OATS particularly when there is an apparent gap in the

affected range (“testing within the range”)

10. Ring CT’s or WFC for more information

**11.6. Create NODS** There is no functionality to enable NODS to be created directly in BB CAN Patterner.

If the evidence points strongly towards a CAN issue affecting Broadband services, this should be brought to the attention of Assurance Ops Workflow Coordinators (WFC) so that further investigation can be undertaken.

If it was deemed necessary to create a NODS for a BB CAN pattern, this will need to be done in native NODS.

**11.7. Check off BB CAN Fault Pattern** Once the pattern has been analysed and a determination made as to the findings and the action to be taken, each fault in the pattern must be ‘checked off’ to indicate this finding/action e.g. CVH = Confirmed Volume Hold or NYV = Not Yet Volume Hold.

Initially, when first appearing, faults in a pattern will display the SIIAM case status of the fault when it first met Pattern Manager criteria e.g. Test-Pending or Field-Open.

There are 3 methods of applying a check-off code:

1. Apply a common code to all faults in the Exchange using the Update All function

2. Apply a common code to selected faults in the Exchange using the selection boxes

3. Apply a single code to each individual fault using the individual drop down lists

To apply a check off action code to each fault in the pattern follow these basic steps:

1. Choose the most appropriate Check off method from the above e.g. if all faults in the

exchange are part of the one outage use Method 1

2. Apply the correct code

3. Click the Update or Update All buttons to save the code and update the exchange

display and the totals in the Exchange list and Region Dashboard

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 48/86

017921w14 Pattern Manager 6.0 (continued)

**11.7.1. BVH Check off code** There is a specific Check Off code to indicate a fault pattern which has been identified by SOM as belonging to an ADSL Outage already set up by WFC:

BVH (Broadband Volume Hold)

This can be identified by checking the WFC Outage Board on the following URL:

http://outageboard.in.telstra.com.au/ob/outageboard.php

The WFC Outage board contains both Active and Ceased outage lists. SOM need to check both. BVH will be applied to either an Active of Ceased WFC outage as these outages also use a Callbacks process to verify restoration.

For detailed instructions on Checking off patterns, refer section 14.7

For a table of valid check off codes and their meanings refer to section 14.8

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 49/86

017921w14 Pattern Manager 6.0 (continued)

**12. Priority Outage Dashboard** Priority Outage Dashboard displays key details of fault patterns in any of the 4 Patterners which have met the criteria for a fast forming or large unchecked Priority Pattern (PP) alert.

Priority Patterns (PP) are those which pose the greatest risk to customer service and business operations.

The Priority Patterning functionality is designed to assist SOM in periods of peak fault volumes and/or natural disaster when the capability of SOM and other workgroups to respond to the very high fault volumes can be severely tested.

There are 2 triggers for the forming and display of a Priority Pattern alert in the Dashboard:

 **Fast** A fault pattern has formed rapidly in a short timeframe

Configured by SOM in ‘Update Priority Thresholds’ in Pattern Manager Admin

Configured as ‘x’ number of faults per ‘y’ hours e.g. 12/6 = 12 faults in 6 hours

Fast PPs form on specific Network Elements e.g. main cables or PGS

Pattern Manager will automatically create a NODS (‘Auto-NODS’)for CAN or PGS PPs

 **Unchecked**

A large fault pattern has not been checked off

Configured by SOM in ‘Update Priority Thresholds’ in Pattern Manager Admin

Configured as ‘x’ number of faults e.g. 20 = 20 faults unchecked

Unchecked PPs just form on the whole exchange

Auto-NODS are never created for Unchecked PPs

Priority Pattern alerts can be triggered from fault patterns in any of the 4 Patterners, if they meet the Priority patterning criteria:

 CAN Patterner  PGS Patterner  Switch Patterner  BB CAN Patterner

Auto-NODS will only be created by Pattern Manager for:

 CAN Priority Patterns  PGS Priority Patterns

When an Auto-NODS has been created, faults in the pattern will be automatically checked off with the Check Off code ‘AVH’ (Automatic Volume Hold)

SOM Complex Consultants investigate, validate and manage Priority Patterns by use of the Priority Outage Dashboard.

Click the Priority Outage Dashboard link from the Pattern Manager home screen to access Priority Dashboard.

TELSTRA CORPORATION LIMITED (ABN 33 051 775 556) |

| | SYSTEM GENERATED | 017921W14 PATTERN MANAGER 6.0 PAGE 50/86