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ICT Nomenclature Specification

Telecommunications

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Reviews and Amendments

This document should be reviewed every one (1) year by the Group Manager Engineering or amended as appropriate if the nature of operations changes significantly.

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1. Conventions

- 1) Words or phrases that appear capitalised out of context are defined within the Definitions section of this VRIOG Standard.
- 2) The word “**Shall**” is to be understood as mandatory.
- 3) The word “**Should**” is to be understood as non-mandatory i.e. advisory or recommended.
- 4) Uncontrolled Standards may not be referenced within the VRIOG Standards. These include former PTC Standards, Franchisee Standards, Franchisee Subcontractor Standards and Infrastructure Lessee Standards.
- 5) Controlled Standards, including Australian Standards and other VRIOG Standards, may be referenced but only if:
 - i) The referenced item cannot be adequately explained with an amount of text that could not reasonably be inserted into the body of the Standard.
 - ii) The reader is not referenced to another Controlled Standard necessary for the item to be adequately explained i.e. one document link only.
 - iii) The referenced document is a Figure or table and could not reasonably be included in the appendices of the Standard.
- 6) The format employed in the VRIOG Standards is compatible with Australian Standards, and will be used from this point on.
- 7) The numbering system for the VRIOG Standards is chronologically sequential from the point of introduction, and is not based on any form of interpretive system.
- 8) The VRIOG Standards contain engineering information necessary to operate a safe Railway. VRIOG Standards will not contain any information that can be construed as a work instruction, procedure, process or protocol. This information forms the basis of each individual entity’s Safety Accreditation Certification, and, as such, is outside the scope of VRIOG Standards.

2. Definitions

Terminology	Definition
ACMA	Australian Communications and Media Authority
ARO	Accredited Rail Operator (e.g.: MTM, V/Line, Yarra Trams)
AS	Australian Standard
CCTV	Closed Circuit Television
CER	Communications Equipment Room
CHP	Customer Help Point
CM	Connect Master (VT's current Cable Record System database)
Contractor	The party or organisation contracted to execute this specification. This could technically be a sub-contractor or sub-sub-contractor to a Head Contractor, Project Manager, or Franchisee.
DC	Direct Current
Design Authority	The Transport ICT Infrastructure Group Manager within Public Transport Victoria.
DIN	German Standards Institute standard relay mounting rail dimensions
DOT	Department of Transport
ELV	Extra Low Voltage (<60V DC or <60V rms AC)
HDMI	High Definition Multimedia Interface
ICT	Information and Communications Technology
IDF	Intermediate Distribution Frame
IEC	International Electro technical Commission
IP	Internet Protocol
LAN	Local Area Network
MDF	Main Distribution Frame
MTM	Metro Trains Melbourne
OCS	Operational Control Systems
'provide'	Supply, install, connect, configure, commission, and include in as-built documentation.
PTV	Public Transport Victoria

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Terminology	Definition
Superintendent	The party responsible for superintending the station works contract as defined in project “Conditions of Contract” documents.
‘this specification’	This document, in conjunction with all referenced specifications for ICT systems.
TTA	Transport Ticketing Authority
VT	VicTrack
WAN	Wide Area Network

Table 1 Definitions

3. Nomenclature Conventions

The Nomenclature conventions used and/or applied in this standard are defined in Table 2 below:

Code	Format	Application
X	Alpha	Location, Container, Pathway and Cable code generic designator
Y	Alpha	Location and Container Alias generic designator
U	Alpha	VRIOGS Location Code – UP Direction
D	Alpha	VRIOGS Location Code – DOWN Direction
V	Alpha	Level 1 VRIOGS Location Codes
N	Numeric	Sequential number for location, container, duct or cable, when used with generic 'XX' alpha designator
n	Numeric	Sequential number for container, duct or cable, when used with alpha prefix
C	Alpha	Prefix designating cable use in Communications application
E	Alpha	Prefix designating cable use in Electrical application
S	Alpha	Prefix designating cable use in Signalling application
A	Alpha	Prefix designating cable use in SCADA application

Table 2 Nomenclature Conventions

The Designator formats used and/or applied in this standard are defined in Table 3 below:

Name	Type	Format	Reference
Location Code Level 1	Alpha	VVV	7.1
Location Code Level 2	Alphanumeric	XXNNN	Table 4
Location Code Level 3	Alphanumeric	XXNNN	Table 5
VicTrack Inter-site Pathway Line Identifiers	Alphanumeric	UUU DDD X NNN	8.2.1, 1.1.1, 0
VicTrack Inter-site Pathway Section Identifiers	Alphanumeric	DNNNN	8.2.2
Intra site Distribution Pathway Code	Alphanumeric	VVV XXNNN XXNNN XNN	1.1.1
Container Code – Pits/Structures	Alphanumeric	XXNNN	Table 6

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Name	Type	Format	Reference
Container Code – Racks	Alphanumeric	VVV XXNNN XXNNN RK-XNN	9.2.2
Alias Codes – Racks	Alphanumeric	XXXNN	Table 7
Distribution Box/Cabinet	Alphanumeric	XX NN Y	B
Container ID Codes/Aliases	Alpha	XX	Table 8
Panel/Frame ID Codes	Alphanumeric	XX	Table 9
Equipment Identifier	Alphanumeric	VVV-XXXnNNN	Table 13

Table 3 Designation of Code Components

4. Introduction

4.1 Purpose

4.1.1 This document specifies the requirements for labelling and identification of ICT, OCS and VicTrack network cabling and equipment in the rail environment (including both trams and metropolitan and regional rail):

- a) On the physical installation.
- b) In cable, distributor and patch schedules and records.
- c) On drawings.

4.1.2 It should be read in conjunction with the following documents:

- a) Project-specific ICT and OCS System Specification: (all parts).
- b) VicTrack Standards in relation to VicTrack Infrastructure

4.1.3 The Intended audience is:

- a) Consultants and Designers specifying ICT and OCS infrastructure and producing drawings and schedules as part of rail construction projects.
- b) Contractors and their installers producing "Issue for Construction" and as-built documentation as part of rail construction projects.
- c) Rail Operator installer and maintainers and their contractors.

4.1.4 The document is not currently applicable to taxi, bus and ferry operators' site distribution due to absence of infrastructure and technically not being part of the Rail Industry covered by VRIOGS; however it does apply to VicTrack's network infrastructure serving those operators.

4.2 Document Scope

4.2.1 This document details the following aspects of identification for all rail Telecommunications, Operational Control Systems and ICT Systems:

4.2.2 Standard nomenclature.

4.2.3 Labels for cables, spaces, distributors and equipment.

4.2.4 Cable Records.

4.2.5 Details to be included on drawings.

4.3 Outcomes

4.3.1 The objective of this document is to standardise the identification of cables, terminations and equipment across all drawings and records in a way which allows future migration of all fixed indoor and outdoor cabling and network records to an automated Cable Records Database held by the respective infrastructure custodian, or maintained by VicTrack as a managed service on behalf of any infrastructure custodian.

4.3.2 VicTrack operates a Cable Records Database system as its cable and network connectivity records platform. VicTrack has established a set of nomenclature standards as part of its Cable Records Database environment.

4.3.3 This document specifies a nomenclature hierarchy, format and content the same as that used by VicTrack to the extent that the same locations and generic infrastructure are being described. This will support a shared or parallel implementation of a Cable Records Database for the purpose of:

- a) Facilitating data interfacing and merging with VicTrack records to achieve end-to-end service views.
- b) Sharing of product knowledge, training, and templates between Accredited Rail Operators (AROs).
- c) Sharing or transfer of skilled resources between AROs
- d) Achieving consistent naming of infrastructure in shared spaces such as equipment rooms.
- e) Facilitating the migration of all records to a single VicTrack Cable Records database, should that be a future development

4.3.4 Other anticipated outcomes of implementing this document include:

- a) Compatibility of records between AROs (even prior to automation and/or management by VicTrack).
- b) Consistent labelling and interpretation of ICT assets.
- c) Consistent interpretation of drawing content and labels assigned within drawings.
- d) Contractors having experience with one ARO are able to understand and allow for requirements of other AROs.
- e) Compliance with Australian and International identification standards.
- f) Structuring of patch, IDF and cable record data in a consistent format which allows conversion to database tables and import into VicTrack Cable Records Database with minimal need for manual manipulation of data.

4.3.5 It is recognized that AROs will also operate Asset Management Databases and fault tracking systems. There are constraints imposed on Asset Management by the requirement for PASS Assets interfaces. It may not be possible to structure the data for Cable and Network records in exactly the same manner as Asset Management Databases, while still maintaining VicTrack Cable Records Database compatibility for data merging or sharing. As a result:

- a) One field (the unique cable number or distributor identifier) shall intentionally be the same in both Asset Management Databases and Cable Records to create a one-to-one data relationship between the data sets.
- b) Where possible, the same format, data string and maximum field character length will be used in both Asset Management Databases and Cable Records to facilitate automatic population of Asset Management Databases with data generated in Cable Records.
- c) Equipment records may not be fully compatible between Asset Management Databases and Cable Records due to one equipment item in Cable Records potentially comprising a number of separate and distinct line replaceable units which would be treated as separate assets.

4.3.6 Locations (defined in clauses 6.2 and Section 7.0) will be consistently and rigorously defined for all Telecommunications, Operational Control Systems and ICT Systems.

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- a) One DMS drawing in the “L-series” set shall be produced to define the boundaries of Level 2 and Level 3 locations across a specific site from the site distribution perspective, to be updated as and when projects result in changes to the physical site layout

4.3.7 This nomenclature specification and associated distribution boundaries shall only apply for Telecommunications, Operational Control Systems and ICT Systems. The requirements for other systems are different and incompatible. The following are specifically excluded from scope:

- a) Electrical distribution (traction or site Low Voltage power)
- b) Signalling

4.3.8 All items indicated in any project specification Contract Data Requirements List (CDRL) to be delivered pre-implementation shall be developed as part of the detailed design activity. Upon installation and commissioning completion, and as part of final site acceptance, these shall all be delivered by the Contractor as as-built drawings.

4.4 Design Authority and Consultation Requirements

4.4.1 The Team Leader Transport ICT Infrastructure within Public Transport Victoria (PTV), retains the Design Authority (DA) on all station OCS projects and shall be directly involved in all scope change decisions and technical information exchanges throughout the project lifecycle.

4.4.2 Liaison with PTV’s Transport ICT Infrastructure team regarding design and delivery of the infrastructure shall be instigated by the Contractor regarding:

- a) Review of “Issue for Construction” records and drawings prior to their issue,
- b) Installation inspections, and
- c) As-built documentation review.

5. General Cabling and Equipment Nomenclature Conventions

5.1 VicTrack Cable Records Compatibility

- 5.1.1 The long-term vision for cable records and associated nomenclature is the achievement of end-to-end traceability of any site terminal device interface to its head end interface via the VT network. Records shall be in a form which can be entered or imported into VicTrack Cable Records without clashing with nomenclature already assigned by VT.
- This is expected to be achieved by making VT the custodian of all cable record data at some point in the future.
 - In the interim, the structure of any interim ARO cable databases shall be such that data fields required by VicTrack Cable Records to achieve this outcome may be imported on a non-real-time daily update basis overnight.
 - Prior to the implementation of any databases, the identification nomenclature used and fields retained in interim spreadsheet cable records shall be formatted in such a way that the data may be imported from spreadsheet fields into a VicTrack Cable Records compatible database without the need for re-formatting or conversion of data.
 - These principles will apply to TTA communications cabling for ticketing.
- 5.1.2 Where VT has already assigned nomenclature conventions, they should be copied to site distribution cabling. Variations to accommodate additional site distribution (OCS and ICT) cable and location types should use the same format and principles.
- 5.1.3 Cable Record Sheets shall contain the same attribute and location field data which would be entered into VicTrack Cable Records or a compatible database, to facilitate future automated import.
- 5.1.4 Three levels of location data (refer to clause 6.2) and the concept of containers (refer to clause 6.3) shall be used by all site distribution Cable Records (spreadsheet or database) to align with VicTrack Cable Records definitions.
- 5.1.5 Identifiers for the following shall be unique within the Level 1 location or "Region" (refer to clause 6.2) corresponding to an assigned 3-Alphabetic Character code (for any ARO or third party items):
- Level 2 Locations (refer to clause 6.2)
 - Container Aliases (refer to clause 6.3)
 - Cables
 - Distributors
 - Equipment
- 5.1.6 Note the requirements of 5.1.5 a) and b) above regarding uniqueness of Location and Container Identifiers require the person or system doing the assigning of identifier numbers to know all assignments already made by all parties within a Level 1 Region, or work within pre-assigned number ranges.

5.2 Distinction from cables of other systems

5.2.1 The Identifier for all telecommunications, OCS and ICT cables covered by this specification shall have a “C” (for “communications”) prefix to distinguish cable numbers from other systems covered by different nomenclature standards suited to those systems.

5.2.2 Identification used for other systems shall have a prefix character relating to that system. Examples include:

- a) “E” for electrical power
- b) “S” for signalling
- c) “A” for SCADA automation data

5.3 Numbering Uniqueness

5.3.1 For VT cabling which runs between sites (between regions or within a Region), a 5- digit identification number unique to the cable within the whole range of sites covered by VicTrack’s Cable Records (potentially all Victorian rail sites) shall be assigned.

5.3.2 For Metropolitan and Regional site distribution cabling, a 5-digit number unique to that Region (Level 1 Location) shall be assigned.

- a) For the purposes of future data importation and merging, 10,000 number ranges are standardised within each region for the respective ARO’s (MTM, V- Line, TTA and others).
- b) Auto-numbering shall be constrained to operate within the assigned ranges for each operator.
- c) The Region boundary for the VRIOGS 3-letter code shall be as defined by VT in VicTrack Cable Records.
 - i. Generally this will be from the UP end of the platform closest to Flinders St Station (at the station of the same name as the VRIOG 3-alpha code) to the UP end of the closest platform of the next station DOWN the line
 - ii. There are exceptions where infrastructure (such as a substation) historically identified as part of a station lies beyond the UP end of the station with the same name. Flinders St Station as rail network centre has a custom definition.

5.3.3 Alias identifiers unique to systems reflecting existing systems nomenclature and practices may be use within station distribution for locations and containers which are later mapped as an attribute to generic database identifiers.

5.3.4 Distributor and equipment identification shall be unique to the Region (Level 1 location)

- a) The same identifier for any specific rack, frame, patch panel and the like shall be used by all operators to ensure that interfaces between operators are consistently recoded and suitable for merging of data sets.
- b) Where the method of assignment described in this specification results in ambiguity due to site specific conditions, the unique naming shall be resolved by consultation and agreement between all operators prior to “Issue for Construction” documentation.

5.3.5 The only relationship between physical items and numbering will be by virtue of the order of entry into auto-numbered asset (distributor and equipment) lists.

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5.3.6 The data entry process for manual Cable Record spreadsheets allows all the cable data to be entered, then sorted by application or other attributes prior to the application of an auto-generated list of numbers, resulting in contiguous numbers for the elements with the same attributes.

5.4 Cable Capacities

5.4.1 VT cable records are confined to copper cables constructed and terminated in pairs, and single mode fibre cables terminated and spliced in simplex circuits and connectors.

5.4.2 Cable records, termination templates and distributor or terminal block records for site distribution shall allow for a mix of the following cables and terminations:

- a) Multimode optical fibre cable terminated and patched in LC-duplex pairs.
- b) Multimode fibre terminated in (legacy) simplex ST connectors in single cores.
- c) Single-mode optical fibre terminated as individual cores to simplex SC-APC connectors, and used as single core based signals or duplex circuits.
- d) Single-core copper conductors (as used for power distribution and earthing).
- e) Multi-core copper conductors terminated and used as individual conductors (as used for ELV power distribution, and selected security and control applications).
- f) Copper paired cable of twisted pair construction, terminated as pairs.
- g) Copper two-conductor cable, terminated and used in pairs carrying a single signal.
- h) Coaxial cable (both single- and multi-core).
- i) Specialist cables combining a mix of conductors or many conductors for a single signal interface (such as Cat6 plug ended cable, HDMI, data buses).

5.4.3 Cable capacities shall be expressed as pairs, conductors (cores) or complete assemblies to match the way they are terminated and used to carry signals.

5.4.4 Where a cable comprising a pair or a group of conductors terminates a single signal, the cable shall be recorded with its signal as a single entity and record field.

- a) A Cat6 4-pair cable terminated in 8P8C sockets at both ends shall be a single connection.
- b) A Cat6 cable terminated at one or both ends in a pair-managed insulation displacement module with each pair individually accessible and jumperable shall have the cable recorded as four paired connections with individual signals identified.
- c) A 3-core (+, - and earth) power cable for a single DC voltage would be recorded as terminating at the source on a single breaker or supply number, and at the sink on a single terminal set, with individual conductor terminations being assigned subscripts a, b, and c.

5.5 Signal Identification Uniqueness

5.5.1 The exact same terms shall be used to describe a signal (or “Service Details”) through patch records from the start to the end point.

- a) To Facilitate this, the “Service Details” should be entered once and then copied and pasted (as plain text) to all other appearances within the records.
- b) For Example, if a CHP relay circuit is identified in service details as “CHP#1 Relay” at the MDF, the same text shall appear for this signal at both ends of every jumper through the CCTV encoder alarm input tail. [NOTE: The signal does not change name to “Encoder Input 1” at any point.]

5.6 Simplification of Cable Component Types

5.6.1 In order to keep selection lists short enough for practical purposes, component templates and defined types shall be restricted to their physical or interface format and logical connectivity. For example:

- a) All UTP modular connector terminations and patch panels shall be designated by their standard “position” and “contact” format (for example 8P8C), regardless of their performance category. The performance rating (for example Cat6) and other details such as shuttering, model number and the like shall be recorded as attributes (if required).
- b) All Cat6 UTP cables shall be considered the one type, with data such as sheath type (indoor, outdoor), colour, spacer type, manufacturer and the like being recorded as attributes.
- c) Optical fibre cables shall be designated by their core count and performance grade (such as OS1, OS2, OM1, OM3 or G.652d) only, with data such as sheath type (indoor, outdoor), colour, spacer type, manufacturer and the like being recorded as attributes.
- d) All cameras with an Ethernet interface shall have the same designation, regardless of make, model, or application (for instance surveillance, remote observation, thermal imaging or SPOT functions).
- e) A generic Ethernet PoE powered device could be defined to cover a wide range of less frequently used devices having the same connectivity. This might include sensors, wireless access points, data loggers, remote control terminals and the like.
- f) All outdoor cabinets shall have the same designation, with the application, system, size, mounting and the like being attribute data.

5.7 Ease of Interpreting Cable, Pathway and Space Labels

5.7.1 Identification labels affixed to cables, containers, distributors and equipment shall comprise a concatenated string of location, identifier and attribute data contained in separate record fields.

5.7.2 Identifier type prefixes, aliases and attributes shall be based on text acronyms of restricted field length such that any label can readily be identified by inspection on site without having to refer to schedules or look up tables.

- a) Wholly numeric codes requiring look-up tables for interpretation shall not be used as attributes or identifiers.
- b) Aliases are considered necessary to allow drawings and labels to be confidently and uniquely assigned around the site without the risk of the data clashing with existing assignments (thereby causing re-labelling) when site distribution is captured in a database.

5.8 Cable Label Size

5.8.1 The amount of text (number of characters) in the label must be low enough such that the text will fit into practical label sizes using a font size (character height) that is readily readable.

5.8.2 For cables of 6mm and smaller diameter, this is considered to be of the order of 20 characters, which is the default label length.

5.8.3 For cables of over 10mm diameter a larger font and larger label size is possible; however, the 20 character length target shall be adhered to.

5.8.4 The actual specified length of cable labels is seven characters.

5.9 Data Hierarchy

5.9.1 Every cable termination (distributor) or equipment item (outlet or plug) shall be defined by a four level position hierarchy comprising:

- a) Level 1 [Region]: VRIOGS Location Code (3 letters)
- b) Level 2 [Location] (5 character, complete station or railyard precinct, building or area on or off track corridor, any pole group or pit group outside defined Level 3 locations)
- c) Level 3 [Area] (5 character room, sub-area, space, wall, roof, or other container location or mounting position)
- d) Level 4 [Container] (4 to 6 character depending on type: pit, mounting pole, enclosure, wall plate, cabinet, wall box, rack, junction box).
 - i. Note that to make cable pathways definitions work in VicTrack Cable Records, pathways must start and end at containers. In rare instances, this may require a wall or mounting surface to be assigned a container identifier.
 - ii. Terminal equipment and its connecting cabling may be defined in VicTrack Cable Records as simply being installed at a Level 3 location without a container. Height and position on the wall can be recorded as attributes. However poles used as mountings shall always be assigned a “pole mount” container identifier if a pole number does not already exist as a result of other functions the pole may have (such as a light pole number).
 - iii. Equipment enclosures such as camera housings, Passenger Information Display enclosures or ticket gate units are regarded as attributes of the actual equipment contained and shall not be assigned container identifiers.

5.10 Patches and Jumpers

5.10.1 Patch cords, fly leads and jumpers are considered as un-fixed cable “connections” in cable record databases and are not assigned numbers in the Cable Records database.

5.10.2 Patch cord cross-connections shall be recorded in patch cord records in a format suitable for import as connections into a Cable Record database (including VicTrack Cable Records).

5.11 DC Power Distribution and Control Multicores

5.11.1 DC power distribution and earth bonding within an enclosure will not be recorded as a separate cable number in the Cable Record Schedule. It will be treated as a “connection” in the same manner as fly leads and jumpers.

- a) The connections within the enclosure shall only be recorded in a DC distribution schedule or as part of that enclosure’s “patch record”. Refer to clause 5.11.2.
- b) The terminated cabling to field devices outside the enclosure shall be recorded in the Cable Record Sheet and identified in the same manner as other cables.
 - i. Where the cable terminates to power distribution terminals on an equipment item, the cable conductors shall be recorded as terminating to the equipment (XXXNNNN ID) and the terminals as labelled on the equipment or indicated in the equipment manual. (A separate DC Distribution field identifier shall not be created).

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- ii. Where the cable terminates to a DC distribution terminal/fuse/circuit breaker field which is outside and not integral with any power conversion or distribution pre-manufactured (commercial off the shelf) equipment item, a DC Distribution field identifier shall be created and all terminals uniquely numbered as contiguous sequences (e.g. 01...NN), with one number per terminated cable.

5.11.2 Where the power distribution forms part of a standard assembly (such as a CCTV Field LAN Switch or Media Converter), the labelling of wire numbers shall match the numbers used in the standard assembly wiring drawing detail, which will normally be single or two digit numbers. The numbers will be the same for every assembly of the same type.

5.11.3 Where terminals terminate a 2C or 2C+E ELV power supply cable, a single terminal number shall be allocated, with the individual conductors being given A, B, C ... suffixes.

- a) This allows the source or load connecting cable to be recorded as a single “connection” in the Cable Record System.
- b) The convention for identifying (labelling) the physical terminals shall be (where NN is the two digit terminal number):
 - i. NNa: Active polarity
 - ii. NNb: 0V or “return” polarity
 - iii. NNc: Earth

5.11.4 Two digit single conductor DC terminal numbers shall be assigned for any single conductor wired terminals within any enclosure (that terminates single conductor cables from outside the enclosure).

5.11.5 There will be no distinction in the cable records between the following types:

- a) Through terminals or tunnel terminals
- b) Lug type terminals
- c) Terminals with integral fuse
- d) Terminals with disconnection link

5.11.6 Terminals used for terminating the ends of multicore cables where conductors are all interconnected in pairs or groups (such as relay contacts) should be identified by the same method as ELV power cables in 5.11.3.

5.12 Multi-dropped Cables

5.12.1 Each run of cable between two devices on a multi-dropped circuit shall be assigned with a unique cable (“section”) number in the Cable Record System. Typical examples include RS485 cables, IRIG-B clock circuits, Security “Challenger LAN”

5.12.2 The following exceptions apply for Public Address wiring:

- a) Loop wired loudspeaker cables: A single number shall be assigned for any single cable run from head end to last speaker.
- b) Where a speaker cable run contains branches, each new branch shall have a single distinct cable number from the branch point to the last speaker in the run.

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- c) A tee connection to a single speaker or Hearing Loop (AFILS) amplifier input shall retain the same number as the main run and not be regarded as a branch.

6. Nomenclature Overview

6.1 Introduction

6.1.1 For the Purposes of the nomenclature and any resulting Cable Records system (manual spreadsheet or database) cabling is defined as constituting:

- a) Pre- defined standard “components” comprising equipment or cable termination products, installed to specific attributes within “containers”.
- b) Containers installed to specific attributes at “locations”.
- c) Pre-defined standard cable components run via “pathways” comprising conduits, trays and ducts between containers, to terminate on components at each end.

6.2 Locations

6.2.1 Locations shall have three levels (as further defined in specification TB-RD_L0100) which correspond to:

- a) Level 1: Region VVV (defined as a section of transport corridor, with 3-letter VRIOGS location code assigned).
- b) Level 2: Functional Area/Building XXNNN (a building or plant item within a Region, a Railway Station, or Stabling Yard [excluding the buildings inside the Yard], would be a single Level 2 location).
- c) Level 3: Area XXNNN (to provide further specific definition of spaces within defined Level 2 Locations such as “Railway Station”).
 - i. Level 3 locations shall be unique to a Level 2 location.
 - ii. As a result, numbering of rooms in any new separate building on the corridor outside an existing Railway Station precinct may be assigned without reference to identifiers used in existing buildings.
 - iii. The numbering of rooms in any new, separate building constructed within an established Railway Station precinct must be assigned with reference to identifiers used in the existing buildings and continue on from existing numbering without overlap.

6.2.2 A Level 3 location bounded by structural elements such as walls, a ceiling or canopy may be recorded as an un-enclosed component location without a specific Container Identifier being assigned. Exact mounting detail is recorded as component attributes in such cases. Examples include:

- a) Wall- or canopy-mounted CCTV cameras.
- b) Canopy- or ceiling-mounted PIDs.
- c) Wall- or post-mounted Customer Help Points on platforms.
- d) Wall Phones.
- e) Security sensors.
- f) Structured cabling wall outlets

6.2.3 One drawing in the L-series (telecommunications) set produced for any project shall show the assignment of Level 2 and Level 3 locations on a suitably scaled Site Telecommunications Nomenclature Plan.

6.3 Containers

6.3.1 Containers enclose equipment or terminations or act as a fixing point. They may include:

- a) Enclosures such as indoor or outdoor, cabinets, racks, and wall boxes.
- b) Pits and specifically identified structures to which components are affixed such as poles, fences, gantries.

6.3.2 Walls, fences and other spread out items without specific identifiers are simply fixing points within (or forming part of) localised Level 3 sub-area boundaries.

6.4 Components

6.4.1 Components may include cable, equipment and termination products.

6.4.2 Components have properties (which are always the same for the same generic component, matching manufacturer data sheets, and only need to be defined once in a database). Properties are primarily related to circuit connectivity such as capacity and performance parameters.

6.4.3 Component attributes distinguish items within a generic class. They may include:

- a) Dimensions.
- b) Conductor sizes.
- c) Materials.
- d) Mechanical detail such as locks.
- e) Manufacturer/brand, model.
- f) Functional variants (for instance PID 2, 4 or 6 line or LCD, wired or wireless)

6.4.4 Component attributes also comprise installation variables such as their physical installation or usage, location, height, mounting arrangement, system or application they are used for, installer and installation date.

6.4.5 Electronic equipment components normally comprise complete assemblies of co-located items. In this respect they differ from “line replaceable units”, “panels” or “modules” as would be recorded in an asset register or equipment list. Examples of single components include:

- a) LAN switch including base unit or chassis, SFP’s, power supply modules (maybe main and redundant), interface modules, power cords.
- b) Integrated 48V DC rectifier including chassis, DC distribution breakers, multiple rectifier modules, SNMP monitoring interface, meter display, power cords.
- c) Camera including lens, housing, mounting bracket, internal Cat6 outlet and patch cord.
- d) A plug pack or “brick” power supply powering an item in the same container shall be regarded as part of the equipment. If the power supply is remote or in a different container it shall be assigned a separate component identifier.

6.5 Basis of Nomenclature

6.5.1 The nomenclature is based on adding to items already set by VicTrack for its implementation of VicTrack Cable Records, maintaining the same data structure.

- a) Where an identifier has been assigned for a location or container by (or for) VicTrack, the same identifier shall (where possible) be used by other operators.

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- b) Where different identifiers must be used by individual operators, the assignments of other operators shall be noted as attribute fields the respective item records.

7. Nomenclature Overview

7.1 Level 1 Locations (Region)

7.1.1 The level 1 location shall be the three letter location code assigned in PTV Infrastructure Drafting Standards Appendix A1 – Location Names and Codes. For example SSS for Southern Cross Station

7.2 Level 1 Locations (Region)

7.2.1 For most station sites, this will be the assigned VT codes for the respective building and/or station structure as an entity on the corridor comprising the Region. It is only required for the database, but not any labels or records maintained by MTM.

The Format is:

[Code XX] [Number NNN] (2-Alpha + 3-Numeric)

7.2.2 Level 2 locations shall be defined as shown in Table 4:

Level 2 Location	Code	Used VT CM as at 2012 (Yes/No)?
Outside Plant: A local area containing a single item or group of items of outdoor plant, normally within the rail corridor (but in some instances maybe a defined area segregated out of RS or SY Level2 area).	OP	Y
Radio Hut	RH	Y
Remote Equipment Room (shared by VT with other users)	RE	Y
Remote Communication Room (exclusively VT)	RC	Y
Power Infrastructure	PI	Y
Signalling Infrastructure	SI	Y
Building (other than PI or SI, such as buildings in a stabling yard [in the case of VT, also any customer premises])	BD	Y
Railway Station comprising the entire contiguous area of the station (but excluding areas which are separated from the station by public roads or other private property and thereby separately accessed). Includes buildings within the station precinct, bridges, underpasses, car spaces, roads, bus stops, kiss and ride drop off, forecourt.	RS	Y
Car Park and trafficable roadways, adjoining kerbs, fences and landscaping outside a primary station precinct and separately accessed from public streets.	CK	N

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Level 2 Location	Code	Used VT CM as at 2012 (Yes/No)?
Bus Interchange (or general bus stop area) non-contiguous with a railway station.	BI	N
Tram stop	TS	N
Sidings track roads and stabling yard or rail maintenance depot area and immediately surrounding fences, vehicular access roads and walkways [excludes buildings inside the boundary].	SY	N

Table 4 Level 2 Location Codes

7.2.3 Pits located outside defined Level 3 boundaries shall be assigned to a Level 2 “Outside Plant” location.

- a) Where pits or poles are located within defined Level 3 sub-areas locations, the respective Level 3 location is recorded as the location of the respective assigned Container identifiers.

7.2.4 The numeric (NNN) component shall be assigned via auto-numbering.

- a) Where pits or poles are located within defined Level 3 sub-areas locations, the respective Level 3 location is recorded as the location of the respective assigned Container identifiers.
- b) Outdoor Cabinets, poles and pits for site distribution (within a Station or Stabling Yard precinct) shall be identified as Containers within the respective Level 3 location.

7.3 Level 3 Locations (Sub-Area)

7.3.1 Level 3 locations shall be of the form XXNNN (2 alpha, 3 numeric).

7.3.2 Level 3 location boundaries shall be defined by access criteria such as choke points, doors and gates, walls and fences and natural traffic boundaries on the principles listed in clause 6.2.1.

7.3.3 Level 3 locations shall be as detailed in Table 5:

Level 3 Location	Code	Used in VT CM Now (Yes/No)?
Exterior mounted cabinet (VT), usually outside other defined Level 3 area locations	MC	Y
Equipment Room (shared by VT with other users)	ER	Y
Communications Room (exclusively for VT)	CR	Y
Signalling Equipment Room	SR	Y

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Level 3 Location	Code	Used in VT CM Now (Yes/No)?
Signal Box (VT) usually outside other defined Level 3 area locations	SB	Y
MDF Room (primarily for VT third party customer premises outside track)	MR	Y
Station Staff Activity Area (includes Station Master and Booking Offices, Control Room, secure areas). Excludes public access areas.	SA	Y
Equipment Compound (fenced off area within a Level 2 area).	EC	Y
Lift	LF	Y
General Room (waiting rooms, toilets, closets and stairwells not covered by Station Activity, Platform, Walkway or Equipment/Communications Room). All rooms except equipment and communications rooms in stabling yard buildings.	RM	Y
Platform (identifier to match assigned platform number). Island platform centre and centre seating area, or items spanning both sides, to be considered part of the odd numbered platform of the pair.	PL	N
Walkway – other than platform or car park, includes stairs and ramps, escalators, concourses, pedestrian bridge (individual stairs or ramps should be defined as distinct walkway numbers)	WK	N
Forecourt activity area – Any area not covered by walkways. May include bicycle lockers, landscaped areas, waiting areas.	FA	N
Car spaces and parking area (including car spaces, entry/exit roads, kiss and ride drop off). Separate areas must be defined for every area having separate vehicular access and non-contiguous with adjacent car space areas.	CS	N
Train stabling sub-area. Generally stabling yards have contiguous roads with one rail access and the entire stabling and rail track area will be one Level 3 location [= YA001].	YA	N
Bus Stop comprising a contiguous group of bus bays including any shelter for that bus stop, concourse and lining up/boarding area.	BS	N

Table 5 Level 3 Location Codes

7.3.4 All Level 3 location [Area] identifiers are only unique within a specific Level 2 Location. For site distribution, note that:

- a) A railway Station Level 2 area comprises the entire station contiguous precinct including all station buildings, concourses, platforms, forecourts, contiguous car parks, internal roads and walkways.
- b) A stabling yard Level 2 area includes the entire space within the fenced or bounded area but excludes the buildings inside the yard (which are separate Level 2 locations).

7.3.5 The numeric (NNN) component shall be assigned via auto-numbering.

- a) To avoid the numbering being initially randomly scattered around the Level 2 location (and therefore to provide a sense of order for constructors), numbering should be distributed to logical groupings during IFC document preparation.
- b) A stabling yard Level 2 area includes the entire space within the fenced or bounded area but excludes the buildings inside the yard (which are separate Level 2 locations).
- c) Outdoor cabinets used exclusively for site distribution are not listed above. They shall be identified as Containers within defined Level 3 locations.

7.4 Location Alias Code Attributes

7.4.1 For existing stations that already have specific rooms identified using an earlier nomenclature system or that have signage based on an architectural nomenclature, the alternative “human” nomenclature for such spaces shall be treated and recorded as an “alias” of the defined Cable Record nomenclature.

7.4.2 The Schedule of Level locations shall include a column of attribute codes containing the Level 2 space alias identifiers.

- a) It is possible that some Level 2 locations have never been assigned an identifier or “human” label. In this case new identifiers shall be defined at the time any VicTrack/OCS/ICT work is done in the respective area.
- b) The Level 2 ID alias for buildings in a stabling yard or maintenance depot should match the function of the building on site, if it does not already (for instance “TWP” for “train wash plant”).

7.4.3 The schedule of Level 3 locations shall include a column of attribute codes containing any sub-area space alias identifiers (for instance SA001 = BO = Booking Office).

7.4.4 Any numeric (NN) component of a newly assigned alias shall be manually numbered in a geographic, physically or logically consistent and contiguous sequence at the time of installation.

8. Pathways Detailed Nomenclature

8.1 Pathway Definition

8.1.1 Pathways are any means of supporting, protecting and routing cables. They comprise conduits, trays, ducts, cable gantries and Aerial catenaries or bearers.

8.2 Inter-site VicTrack Pathways

8.2.1 Pathways "Line" identifiers shall comprise the UP and DOWN end Level 1 location, the respective pathway prefix code (1-alphabetic character) and the unique (3-digit) number of that specific pathway in the set of pathways over the same route.

[UP END VRIOG CODE UUU]– [DOWN END VRIOG CODE DDD] [TYPE CODE X]
[NNN]

8.2.2 Refer to TS SP028 VicTrack Nomenclature Standard for full details.

8.3 Intra-site Distribution Pathways

8.3.1 Reserved.

8.3.2 Reserved.

8.3.3 Reserved.

8.3.4 Reserved.

8.3.5 Reserved.

8.3.6 Reserved.

8.3.7 Reserved.

8.3.8 Reserved.

8.3.9 Reserved.

8.3.10 Reserved.

9. Containers Detailed Nomenclature

9.1 Pits and Outdoor Structures

9.1.1 Containers comprise pits and structural elements which act as a current or prospective mounting fixture for ICT/OCS/VT infrastructure and/or a termination for pathways.

9.1.2 The full identification for a pit or outdoor structure as shown on its label and on layout drawings shall be of the form:

[Level 1 ID VVV] [Level 2 ID XXNNN] [Container ID XXNNNN]

- a) Note that for site distribution, every container has a Level 2 and Level 3 location recorded in Cable Records, however its container number is still unique to the Region.
 - b) Container ID numeric component NNNN first two leading zeros may be suppressed in identifiers on drawings and physical labels affixed. For instance, CP27 as opposed to CP0027.
 - c) Four digits are required for the numeric component container identifiers due to a need on the part of VT to commence numbering of new pits without the risk of overlapping numbers for old pits recorded in various past records being imported into VicTrack Cable Records.
- 9.1.3 Container Type shall be used to distinguish between three types of VT pits, pits exclusively for third party carriers, and pits used for site distribution.
- 9.1.4 Pit and structure container identifiers are defined as follows:

Pit or Structure Type	Container Type Code	“Owner”
Joining Pit	JP	VicTrack
Loop Pit	LP	VicTrack
Haul “through” Pit	TP	VicTrack
Site distribution OCS/ICT Pit (may be haul, loop or joint, but usually only haul pit)	CP	ARO
Electrical Pit (not normally recorded in ICT/OCS/VT cable records, but may be shown on combined services civil plans)	EP	ARO
Signalling Pit (not normally recorded in ICT/OCS/VT cable records, but may be shown on combined services civil plans)	SP	ARO
Third party carrier (e.g. Telstra, Optus) service entry pit	TT	Respective Carrier (Telco)
Pole (any pole, whether purely communications, CCTV camera pole, lighting pole, electrical pole or joint use)	PE	ARO or electricity utility as applicable
Perimeter fence section or gate	FE	ARO

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Pit or Structure Type	Container Type Code	“Owner”
Gantry or overhead beam or outrigger / cantilever mount	GM	ARO
Building element used to terminate a pathway (wall, floor, roof)	BE	ARO

Table 6 Container Codes – Pit and Structure

- 9.1.5 Other pit attributes recorded in Cable Record pit records but not necessarily shown on drawings (other than a pasted in list) shall include:
- Location coordinates (easting and northing as built)
 - Lid type (simple lid or recessed access cover with concrete plinth)
 - Lid load class [of A to D] (trafficable or not)
 - Lid locking arrangement (nil, padlock + key type, Barri bolt, hex bolt)
 - Ownership
 - Material of pit proper (HDPE, polycrrete, precast concrete, in-situ concrete)
 - Manufacturer
 - Model type (for example P3, P4, P66 etc.) from manufacturer list of pit components (note that the same size classification or type differs significantly in size between brands)
 - Dimensions (L x W x D) for the respective component
- 9.1.6 Other structural attributes recorded in Cable Records but not necessarily shown on drawings (other than a pasted-on list) shall include:
- Pole or structural element centre location coordinates (easting and northing as built)
 - Structure type (typically make and model)
 - Structure height
 - Structure characteristics
 - Ownership
- 9.1.7 For simplicity of recording on combined services site plans, it is recommended that every pole (whether lighting, electrical, joint use, or communications only) be assigned a PEEnn number within Cable Records.
- Where the pole is electrical, the designation on electrical plans and the label on the pole shall be in accordance with the electrical nomenclature.
 - Assigned electrical identifiers shall be recorded as a “human” alias against PEEnn numbers in Cable Records.

9.2 Racks

- 9.2.1 Containers comprising cabinets or enclosures fitted with vertical rails conforming to standard (IEC 60297) racking dimensions shall be treated as a “Rack” type container and identified as indicated in this section:
- All other wall and floor mount enclosures shall be treated and identified as distribution boxes, - “Wall Boxes” or “Cabinets” in accordance with clause 9.3.
 - Boxes having some rack-mounting rails within the enclosed space, but also having non-rack-mounting sections or other dimensions and formats (such as backboards, gear trays or DIN rails not fixed to rack rails) shall be regarded as distribution box type containers.
 - Any alias identifier assigned for a rack container shall be specific to its function, and not the mechanical racking format of the container.

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- 9.2.2** Racks within an already identified space shall be identified in the following form with a number unique to the Level 3 Location ID of that space:
RK-[Suite 1-alpha X] [Number in suite 2-digit NN]
The full name will thus be:
[Location ID Levels 1 to 3]RK-[Suite 1-Alpha X] [Number in suite 2-digit NN]
As an example, the second rack in the first row in a shared CER and Nunawading station (new station is assumed to be RS001, de-commissioned station RS002) would be NWG RS001 ER001 RK-A02.
A further single rack in the Station Master office SA003 for voice/data cabling would be identified as NWG RS001 SA003 RK-A01.
- 9.2.3** Rack numbers shall be manually assigned on the above basis.
- 9.2.4** A suite comprises a row or “bay line” of adjacent racks.
- The first suite (A) shall be the one furthest from the space entrance or door.
 - Additional suites (B, C ...) may be defined for the same space or room.
 - With the exception of very large stations and train control centres, most CERs will only have a single suite A.
 - Positions in the bay line shall number starting at the rack furthest from the door. (This may result in numbering from left to right, or right to left, depending on the room layout).
- 9.2.5** Where there is no suite, but rather racks are installed around the perimeter of a room, the perimeter shall be treated as bay-line A, and racks shall number clockwise around the room from RK-A01 furthest from the entry door.
- 9.2.6** Where a bay line or room perimeter contains non-rack format cabinets which could be occupied by a rack in the future, and identifier shall be reserved such that the identification of racks will remain standard and consistent after a future upgrades to racks.
- The current container shall still be identified as a CBnn box or cabinet.
 - The numeric component of the rack identifiers in the room will as a result be non-contiguous.
- 9.2.7** Racks shall be defined (in cable records) by the following properties:
- Number of Rack Units height.
 - Width format (19” 24” or 24”-with-19”-rails)
- 9.2.8** Rack attributes shall include an alias of the form [System XXX number NN]:
- The system designation **alias** shall be identified **uniquely to the region** (Level 1 location) as a rack attribute (and to be used on drawings) as defined in Table 7:

Name	Alias	Owner
OCS Rack 1 (normally containing CCTV)	OCS01	Operator
OCS Rack 2 (containing PA, AFILS, PRIDE)	OCS02	Operator
OCS Rack 3 (if applicable, e.g. CCTV archival site)	OCS03	Operator
Rack used exclusively as a CCTV Field LAN Switch box FLS3A	FS03A	Operator
VicTrack Rack 1 (transmission)	VTK01	VicTrack
VicTrack Rack 2 (e.g. train radio)	VTK02	VicTrack

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Name	Alias	Owner
First ICT rack (e.g. for operator voice/data)	ICT01	Operator
Second ICT Rack (e.g. for Station Master office voice/data node)	ICT02	Operator
Ticketing rack 1	TKT01	Oper (TTA)
Signal rack 1	SIG01	Operator
Electrical rack 1 (SCADA, Control)	ELE01	Operator

Table 7 Alias Codes – System Racks

- b) Location (space identifier)
- c) Type (indoor open frame, indoor cabinet, outdoor cabinet)
- d) Depth (for cabinets)
- e) Accessibility and equipment mounting (front only, or both front and rear)
- f) Rack owner (maintenance access)
- g) Cooling facilities (passive vents, fan tray fitted, in-rack air conditioner)
- h) Security class (if applicable, leave blank otherwise, e.g. Class C)
- i) Integral patch lead management (yes/no)
- j) Lock
- k) Colour
- l) Manufacturer

9.2.9 Both the Rack Level 3 location and Identifier, and the system designation Alias attribute shall be indicated in a two line format on:

- a) Enlarged scale (1:20) insets on layout plans, or standalone room layouts.
- b) Cabling schematics within the dashed line representing the container boundary.

For example:

ER001 RK-A02

OCS02

9.2.10 For construction purposes and up to the time of Cable Record Database data entry at some time in the future, the Container schedule (sheet) shall be created and maintained for each site (as part of the Cable Record List Excel file) listing the specified properties and attributes of all racks along with other defined containers. Clause 9.2.8 a) to i) shall form part of IFC documentation.

9.3 Distribution Boxes/Cabinets (Including with active equipment)

9.3.1 Distribution boxes or cabinets act as containers for one or more distribution frames and possible one or more items of active equipment.

9.3.2 All passive or active distribution boxes or cabinets shall be identified in the form XXNN with a number unique to Level 3 location, where XX is the respective box type code, and NN is sequential (auto) number box starting at 01.

9.3.3 Distribution boxes containing active equipment forming part of specific systems shall be provided with a manually generated attribute alias unique to the region (Level 1 location) of the form:

[Type code 2-alpha XX]- [Loop, ring or daisy chain run number 2-digit NN] [Position of box in run 1-alpha Y]

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- a) Linear runs shall be numbered with lowest number starting at the end closest to the head end or CER.
- b) Loop (ring) runs shall be numbered clockwise from the CER (or ring connecting point).
- c) Where the box distribution contains both communications and ELV DC power elements, the run number (and therefore box number sequence) will be in accordance with the communications cabling.
- d) Where single boxes are star wired from one distribution point, each box shall have its own run number.
- e) If all boxes star out from a central box (or the CER MDF or system rack), the boxes will be numbered XX01A through XXNNA.
- f) Note that to achieve the above, auto-numbering will not be applied to aliases.

9.3.4 Distribution box information shall be shown on drawings as follows

- a) Layout plans showing locations on a floor or site plan:
 - i. Active equipment box with assigned alias
[Box ID XXXN] [Alias XXNNYY]
 - ii. Box containing passive distributor or joint:
[Box ID XXNN] [Contained Distributor ID/joint ID]
- b) Inside box boundary dashed line on cabling and system schematics:
 - i. Active equipment box with assigned alias:
[Alias XXNNYY]
 - ii. Box containing passive distributor or joint:
[Level 2 location][Level 3 location][Box ID XXNN]

9.3.5 Where media converters branch off a Field LAN Switch, the box alias numbering shall continue as if they were the next or neighbour boxes on the run or ring to that switch, with the same FS-NNY designation).

- a) For example, if two MCs are wired to FS02A, they would be numbered FS02B and FS02C. The next Field LAN Switch fed off FS02A (if applicable) would be FS02D.

9.3.6 The type designator 2-alpha (XX) of boxes shall be designed as shown in Table 8:

Name	ID Code	Alias
Wall Box (includes junction boxes)	WB	-
Cabinet	CB	-
Pillar (<i>NB is same code as Platform location but different string length</i>)	PL	-
Wall plate (for wall outlets uncommitted to specific equipment)	WP	-
OCS Field LAN Switch box, Media Converter Box, Security Location Box	WB or CB	FS
Audio Frequency Induction Loop (Hearing Augmentation) Amplifier Box	WB	HB
Security box general (containing door controllers, DGPs and alarm I/O)	WB	SB
Fence perimeter detection box	WB	FB

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Name	ID Code	Alias
Gate controller box	WB	GB
Lift Marshalling Box	WB	LB

Table 8 Container ID Codes and Aliases

9.3.7 Distribution Box attributes shall include the following where applicable:

- Location (space identifier)
- Height (above finished floor or ground level, to centre), zero if floor mounted
- The respective System (if single System purpose), or "OCS General" if serving multiple OCS sub-systems.
- Lock
- Material (Plastic, stainless steel, etc.)
- Manufacturer
- IP Rating

9.3.8 The following Distribution Box Properties shall be recorded:

- Type (indoor, outdoor, CCTV types 1 or 2)
- Dimensions W x H x D

9.3.9 Patch panels and pair managed frames within boxes ("containers") will not normally have numbering related to the respective box, but rather auto numbering will apply.

10. Cabling Detailed Nomenclature

10.1 Patch Panels and Distribution Frames

- 10.1.1 Every patch panel and frame (comprising one or multiple verticals) shall be provided with an identifier unique to the Level 1 (region) location.
- 10.1.2 Every physically separate equipment item (distributor vertical or physically separate panel) shall have a unique suffix identifier.
- 10.1.3 Each pair managed distributor vertical shall have its own identity and attributes,
- 10.1.4 Multiple adjacent patch panels shall be treated and identified separately, as opposed to being aggregated into a single distributor with a larger port count. [NB: this matches recently proposed MTM numbering in principle but not most historic cabling.]
- 10.1.5 The type designator 2-alpha (XX) of frames and panels shall be identified as detailed in Table 9:

Name	Abbreviation
Pair managed jumperable distribution frame (Krone Frame)	DF
Optical Fibre patch panel (SMOF or MMOF, all connector types)	FP
UTP modular patch panel (Cat5 and higher, 8P8C connectors)	UP
STP (shielded) modular patch panel (Cat5 and higher, 8P8C connectors)	SP
Data patch panel (other copper connector types such as D9, D15)	DP
BNC coaxial patch panel (75 ohm)	BP
N-connector coaxial patch panel (primarily radio, 50 ohm)	NP
Audio jack panel, TRS (Tip Ring Sleeve), Cannon XLR or Neutrik	AP
Non jumperable (splice) frame to final distribution or transition point between cable types	TF
B-supply ELV (DC) distribution breaker or fuse terminal field (includes Phoenix UT16, ST4-HESI, ST4-HEDI as used in CCTV site distribution)	BF
Through terminal screw terminal blocks for control and alarm I/O circuits, single conductor terminated (tunnel type, Phoenix UK or UT series, etc.), without disconnection links or fuses	TB
(8P8C) telecommunications wall outlet jack not committed to any specific Equipment. Possibly spare or for itinerant maintenance use. May be left patched and "live", even if not equipment is plugged in. Usually outlets identified as	TJ

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Name	Abbreviation
V01...Vnn or D01....Dnn. Note that number will be unique to the region (Level 1), even though the outlet number may only be unique at Level 2 or even Level 3.	

Note 1: CP ("Copper Panel") and TP (Transition Point) have been avoided above to prevent conflict with container identifiers CP (Communications Pit) and TP (Tram Pole [VT]).

Table 9 Panel and Frame Identification Codes

10.1.6 Patch panels and distribution frames shall be identified in the following form with a number unique to the site:

[Type code 2-alpha XX] - Number NNN]

- The number NNN shall be unique to the type, but may be repeated between types.
- Auto numbering shall be applied, however by data entry, effort shall be made to keep patch panels within the same system contiguously numbered.

10.1.7 The following number range reservations are made to allow panels owned by various users to be pre-assigned without potential clashes when entered in VicTrack Cable Records.

Number Range	Application
001-099	Vic Track panels and frames
101-399	MTM managed panels and frames
401-599	V-Line managed panels and frames
601-799	Transport Ticketing Authority managed panels and frames
801-999	Yarra Trams managed panels and frames

Table 10 Panel and Frame Numbering Ranges

10.1.8 Panel numbering shall generally be sequential auto-numbering and unrelated to box numbering.

- By data entry order, panels should be numbered in the same sequence as box numbering.
- Where a Level 1 region contains several large sites being independently developed, number ranges should be reserved within each site from the above sets.

10.1.9 The following Patch Panel and Distribution Frame Properties shall be recorded (to achieve one defined component in VicTrack Cable Records or in schedules for each combination of capacity and connector type):

- Port capacity (patch panels), frame height in Series 2 ADC-Krone modules (DF's)
- Connector type:
 - Module type (Series2, Highband10, Ultim8) for ADC-Krone frames
 - Normally 8P8C for UTP patch panels
 - Normally LC-duplex for OM3 Panels and SC-APC single fibre for SMOF panels
 - BNC for analogue CCTV coax panels.

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10.1.10 Patch Panel and Distribution Frame attributes shall include:

- a) Location (container identifier)
 - i. Note, for TJnnn outlet the container will usually be WPnnn wall plates
- b) Rack unit position of the bottom RU occupied (for rack mounted panels)
- c) The respective System (if single system purpose), or "ICT" if serving multiple ICT and security systems.
- d) Dimensions W x H x D for number of rack units
- e) Performance category (for UTP/STP panels)
- f) Manufacturer
- g) Model number (patch panels only)

10.2 Cable Identification – VicTrack Cables

10.2.1 Cable identification and parameters for VicTrack records shall be in accordance with the referenced VicTrack Cable Records Standards (refer to clause 8.2.3)

10.3 Cable Identification in Site Distribution Records

10.3.1 For site distribution, there are not normally any intermediate joints in the cable. In the VT nomenclature, a distribution cable will always comprise a single "section" and the cable "number" will be numeric. Cable "segments" (for instance and underground and an indoor tray run on the route of a distribution cable) will not be defined.

10.3.2 Every cable shall be assigned a 5-number NNNNN "section ID" unique to the Level 1 Region.

- a) This number will uniquely identify the cable in records for that region.
- b) The ID will normally be the next available unassigned number.

10.3.3 In the case of interconnect patch cables either from terminal device to equipment port, between two equipment ports, or between equipment ports and patch panels, the patch will not be assigned a number in the Cable Record Sheet because it is treated as a "connection" in that system.

- a) A label shall be fitted when the cord is installed showing the equipment or panel identifier and port/terminal number at each end.
- b) Patch cord labels will therefore be self-evident and not recorded into patch records (to AS3085.1).
- c) Patch cord labels shall not be shown on drawings.

10.3.4 Connections between DC fuse or breaker fields and equipment power input ports shall be recorded as "connections".

- a) Where the wiring forms part of a standard assembly, clip-on or wrap-on (one- or two-digit) wire number "labels" may be added matching the respective numbers standard assembly drawings.
- b) Any such wire numbers will not be recorded in Cable Records.

10.3.5 Equipment mains power cords shall be labelled with an "E" prefix, the equipment identifier [XXXNNNN] and a single digit number [n] of the form: **E-XXXNNNN-n** at each end.

- a) Power cord labels shall not be recorded in Cable Records or on drawings.

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- 10.3.6** A system attribute shall be recorded in the Cable Records Sheet and any future database against every cable.
- The attribute will generally match the code used for respective connected equipment used in asset registers.
 - There are no codes allocated for on-board cabling on rolling stock or for portable equipment because they are not part of the fixed cabling infrastructure being recorded, although they appear as assets in asset registers.
 - There are no codes allocated for fire alarms, Building Automation, SCADA and general Electrical and Mechanical services cabling as these are outside the scope of ICT/OCS records and the Cable Record Sheets.
 - System attribute codes (for incorporation into cable records) are defined in clause 15.1.
- 10.3.7** Cable data shall include the following attributes and properties, with all containers, cable types, spaces and the like being selected from drop down lists in a database or data validation list in spreadsheet records where possible:
- Cable Section ID
 - Generic Cable Type (Property)
 - Insulation and environment (construction type, for example "PVC indoor")
 - Conductor size (strand count for multi-strand and diameter)
 - System / application
 - Length
 - Type identifier (Property, for use in future Cable Line records)
 - Performance category (Property)
 - Sheath colour
 - Level 2 Start location (building or site area, will be the same for all cables within the same railway station precinct)
 - Level 3 Start Location (sub-area, room or space code)
 - Start container
 - Start distributor or equipment
 - Start termination range, field or port
 - Level 2 End location (building or site area, will be the same for all cables within the same railway station precinct)
 - Level 3 End location (sub-area, room or space code)
 - End Container (if applicable)
 - End distributor or equipment
 - End termination range, field or port
 - End service and/or signal protocol carried [Mainly for terminal device cables and patch cords] (e.g. 1000baseSx, 100baseT, PAL video, "multiple" for multi-pair backbones)
 - Installed date
 - Test result reference (if applicable)
 - Installer
 - Manufacturer
 - Model Number
 - Attributes to be optionally recorded (where required by specific project documents):
 - Pits traversed
 - Conduits, ducts and trays traversed

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10.3.8 Cable Properties, where indicated above (generic properties defining the circuit connectivity offered by the cable, to be defined once then selected from drop down menu in a database or value validation list in spreadsheets) shall include:

- a) Generic product type and capacity (pairs for telephone and UTP/STP CatX cable, coaxial pairs types C, U, X, S, R), cores for fibre and other unbalanced cables.
- b) Type identifier.
- c) Performance category or construction type for the cable [not the application it serves] (e.g. S008 telephone, Cat5, Cat6, OM3, G.652d, OS2).

10.4 Allocation of Cable Type Identifiers in Line Numbers

10.4.1 Under automated database records only (but not in manually generated Cable Record Sheet spreadsheet records), every cable shall be provided with a cable line number in the form of XNNN where:

- a) X is the cable type prefix as per Table 11
- b) NNN is the three digit number for the cable of the same type (X) between two distinct Level 3 locations (spaces) or containers, panels or equipment, numbered contiguously and sequentially starting at 001:
 - i. It is acknowledged that for most terminal devices and single cables between two points, the Cable Line number will only be 001. Although it may seem superfluous in that context, it shall still be generated.
 - ii. Cable Line numbers will not be assigned in the pre-database site distribution cable schedules, however the cable type prefix shall be recorded.

10.4.2 Cable type identifiers specified in Table 11 are assigned (to form part of future Cable Line number).

- a) Note: these identifiers are not intended to be a complete definition of the cable, the cable properties such as performance, capacity, shielding, and conductor size shall be available as a pre-defined data set when a specific cable type is selected.

Cable Type	Identifier
Optical Fibre	F
Multi-pair copper up to Cat3	C
UTP copper Cat5 or above	U
Coaxial cable (75 ohm video)	X
Shielded paired cable, any grade (excludes microphone cable)	S
VGA cables	V
DVI Cables	D
4-core or multicore security detector or actuator cable	Y
Multi-core unbalanced cable (general, shielded or unshielded)	M

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Cable Type	Identifier
DC power cable (Typically 2core or 2core + Earth, but could be any core count)	B
AC Mains Power (electrical) cable	E
RF coaxial cable (50 ohm)	R
100V PA line cable or any other Fig8 not used for DC power	P
Hearing loop cable (from amplifier to loop, within loop)	H
Balanced shielded audio cable for microphones and PA auxiliary lines	A

Table 11 Cable Type Identification Codes

11. Detailed Equipment Nomenclature

11.1 Equipment Identifier Format

11.1.1 For field and terminal equipment, an acronym of at least three characters is required for the equipment type.

- a) Three characters has been set as the standard to keep text strings short for fitting on drawings and for compatibility with other asset databases, whilst providing enough characters to identify the range of items encountered in OCS and ICT systems.

11.1.2 In order to allow each owner to auto-assign equipment numbers unique to a region without having to consider numbers already assigned within the region by other owners of equipment with the same equipment code, a single digit number “n” shall be assigned to represent the owner as the leading digit in a 4-digit numeric Equipment ID string.

Owner	Number
VicTrack	0
Metropolitan Train Operator	1
Regional Train Operator	2
Tram Operator	3
Ticketing Operator	4

Table 12 System Owner Codes

11.1.3 Given larger regions will often have more than 100 units of some devices like cameras or alarm sensors, three further digits are required for unique equipment identification.

- a) Auto-numbering shall be employed (subject to clause 11.1.4).
- b) By order of data entry, items physically grouped in a sequence shall have the same number order when entered initially in manual or database Cable Records.
- c) Reserved number assignments shall be made for known future additions.
- d) It is accepted that over time after moves, adds and changes, the order of numbering will be less indicative of physical groupings and more indicative of installation order.

11.1.4 To ensure uniqueness and ability to independently develop numbering by project or by precinct in regions containing several large Level 2 areas (such as station and stabling yard), 100 number ranges shall be pre-defined for each Level 2 area for the equipment numeric component.

- a) The number of 100 number ranges assigned for each equipment type shall be consistent with the sizes of the respective sites and allow for approximately 100% future expansion of equipment quantities.
- b) In the case of a station and stabling yard in the same region, the recommended default is n001-n199 for the station, n201-n399 for the stabling yard, and a further 100 numbers for each subsequent site (such as a substation). [“n” represents owner digit].
- c) Multiples of 100 shall be skipped in the numbering
- d) For auto-numbering purposes within a Cabling Record Database, this may mean dummy assignments need to be made to consume and reserve spare numbers until assigned to actual equipment.

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11.1.5 The format of the full equipment identifier shall be:

**[Site ID - Level 1 Location VVV]- [3-alpha equipment type XXX]
[owner ID n] [3 digit number NNN]**

Note: There is no dash between the character and numeric strings, i.e. VVV-XXXnNNN

11.2 Standard Equipment Identifiers

11.2.1 Equipment identifiers are listed in clause 15.2

- a) The following equipment attributes shall be recorded in cable records (these will vary with equipment type):
- b) Location Area (Level 2)
- c) Location Sub-Area (Level 3)
- d) Container [or mounting surface or type]
- e) RU position of bottom of unit (if in a rack), height if on wall or ceiling
- f) Installation date

11.2.2 The following equipment attributes shall be captured in cable records databases (when implemented) but will not be included in the Cable Record Sheet spreadsheet (although they shall be captured in the Master Record Index spreadsheet and IP address schedule against the item Identifier).

- a) Make
- b) Model
- c) Type within a generic class
- d) Software version
- e) Firmware version
- f) IP Address
- g) Equipped options
- h) Installation accessories (multiple fields)
 - i. For CCTV camera or LCD PID: housing
 - ii. For CCTV camera or LCD PID: Mounting bracket

11.2.3 The following properties shall be recorded in automated cable records databases only (not required for manually entered Cable Record Sheet spreadsheet):

- a) Designations of all interface ports
- b) Dimensions (L/H x W x D)

12. Label Definitions

12.1 Pathways

- 12.1.1 For the pathways identified and captured in Cable Records (in accordance with clause Section 8.0), identification labels for affixing to the pathway ends shall be produced comprising two lines of text of the form:
- Line Identifier (omitting the first three character site VRIOG code VVV prefix); see section 7.3.4.
 - Section Identifier; see section 7.3.5.
- 12.1.2 For the pathways identified and captured in Cable Records (in accordance with clause Section 8.0), identification labels for affixing to the pathway ends shall be produced comprising two lines of text of the form:
- For conduit labels at conduit ends in pits, engraved labels shall be provided and affixed to the pit wall above the conduit appearance. Labels for multiple conduits shall be arranged in an array towards the top of the pit side above the conduits, arranged in a pattern matching the physical order of conduits below.
 - For conduit labels at conduit entries into rooms or outside rooms against walls, engraved labels shall be provided and affixed to the wall horizontally adjacent to the conduit appearance. Labels for multiple conduits shall be arranged in an array beside the group of conduits, arranged in a pattern matching the physical order of conduits below, with rear-most conduits being on the top row.
 - For exposed conduits, an indelible adhesive label shall be applied on the conduit face in a position that can easily be read during inspection.
- 12.1.3 Pathway labels shall comprise a minimum of 20 point (7mm height) Sans Serif format black text engraved on a white background.
- Labels shall be affixed in a secure manner which will withstand the environmental conditions without degrading the integrity of the container or pathway.

For example:

CP0107-CP0108 C001
D01574

12.2 Fixed Cables

- 12.2.1 The Default cable label format shall be: C- [Cable ID# NNNNN] Where N denotes numeric digits of the assigned number.
- 12.2.2 The cable label designations shall be automatically calculated by formulae in the Cable Record List spreadsheet sheet (refer item appended at clause 16.1).
- The text size on cable labels shall be a minimum of 9 point or 2.7 mm text height. The font shall be of a filled Sans Serif format such as Helvetica or Arial.
 - The text size on cables of over 15 mm diameter shall be 20 point (6 mm text height) or greater.
 - Labels shall comprise black text on a white background.

For example (small cable, 6mm diameter):

C-00235

For example (larger cable):

C-00123

12.2.3 The C-prefix followed by the assigned 5-digit cable number only shall be shown on cabling schematic drawings.

12.3 Patch Cords and Fly Leads

12.3.1 Patch cords (and fly leads) shall be labelled at each end within 50 mm of the plug by the following method and not be included in fixed Cable Record Sheets (or database or patch records).

- a) For patch cords: [A-end equipment or panel code XXXNNX] [Port number (if more than one) NN] - [B-end equipment or panel code XXXNNX] [Port Number (if more than one) NN]. As this method replicates the patch record, there is no requirement to capture this in a patch record table.
- b) For fly leads: [Terminal equipment code XXXnNNN] - [Outlet socket number or ID as per socket label XXNN]. If there is only ever going to be one fly lead at a location (for instance inside a camera housing) or if leads are short and easy to trace (three or four cords in a small wall box) the cord need not be labelled.

12.4 Patch Cords and Fly Leads

12.4.1 Containers shall be fitted with a label readable from a range of at least 1500 mm comprising a minimum of 26 point (7 mm text height) lettering fixed to the container in a secure manner which does not degrade its environmental integrity.

12.4.2 Pits and poles shall be fitted with engraved or punched metal labels showing their assigned identifier.

12.4.3 Wall and outdoor pad-mount cabinets shall be fitted with a label having two rows of text comprising:

- a) Assigned container identifier (for example WB103)
- b) Alias identify of that cabinet within its respective system (if applicable, for example FLS3A).

12.4.4 Rack cabinets shall be fitted with a label having three rows of text comprising:

- a) Full location prefix (for example NWG RS001 ER001)
- b) Assigned rack identifier (for example RK-A03)
- c) Alias identity of that cabinet within its respective system (if applicable, for example "OCS02"; or "FLS4A" [if its function is exclusively a CCTV field LAN switch])
- d) The text does not include the "owner" attribute (as this should be self-evident from the system Alias and can be confirmed from the records).

For Example:

NWG RS001 ER001
RK-A03
OCS02

12.4.5 Container identifiers shall be shown on site and floor layout drawings.

- a) Rack and wall cabinets shall also have any assigned alias shown on site and floor layout drawings.
- b) The boundary of rack and wall cabinet containers shall be shown by dashed line work in cabling schematics, together with the respective identifier and/or its alias.
- c) Containers provided exclusively for distributors (cable termination frames) shall also show the respective enclosed distributor identifier on site and floor layouts.

12.4.6 Where a rack encloses elements of multiple systems or networks, any defined virtual containers for the systems shall be shown on the label in brackets.

For example:

NWG RS001 ER001
RK-A03
OCS01 (FS02A)

12.5 Distributors

12.5.1 Wall-mounted distributors shall be fitted with a distributor identification label fixed to the wall above the distributor and any entering/leaving cable or jumper space with a label comprising a minimum of 56 point (20 mm text height) lettering engraved black on white background fixed to the wall in a secure manner which does not degrade its environmental integrity.

- a) Where the distributor has more than four verticals or termination fields, each shall be fitted with a label above or below the respective field (to achieve best readability) with a minimum of 26 point (9 mm high) lettering engraved black on white background, fixed in the same manner as the main identifier label.
- b) On smaller distributors, it shall be assumed fields are A, B, C, and D in order of left to right and top to bottom.

For example:

DF103

12.5.2 Rack-mounted distributors shall be fitted with a self-adhesive machine printed label indicating the assigned distributor identifier in a minimum of 20 point (7 mm high) black Sans Serif format text on white background.

12.6 Wall Outlets

12.6.1 Modular outlets for structured cabling wired to a modular patch panel shall have an adhesive label with a minimum of 12 point Sans Serif text of the form:

[Serving Distributor ID XXNNNX]- [Distributor port # NN]/ [Plan Alias YNN]

- a) The plan alias will be the outlet number assigned on the floor plan.
- b) "Y" represents a character for the outlet type, typically
 - i. D = Data
 - ii. V = Voice (phone)
 - iii. C = CCTV (workstation)
 - iv. S = Screen (video monitor)
 - v. M = Microphone
 - vi. T = TV
- c) Every socket shall be assigned a unique number (for instance a double outlet shall have two numbers).
For Example (above one socket):

UP103-12/D12

12.6.2 Modular wall outlets for structured cabling wired to a pair-managed distribution frame (primarily telephone) shall have an adhesive label with a minimum of 12 point Sans Serif text of the form:

[Serving Distributor ID XXNNN][Vertical][Pair range on vertical]

- a) The plan alias will be the outlet number assigned on the floor plan.
- b) "Y" represents a character for the outlet type (as per clause 12.6.1 b)
- c) Every socket shall be assigned a unique number (for instance a double outlet shall have two numbers)
For example (above one socket):

DF103 C11-14/V02

12.6.3 Modular outlets for permanent OCS equipment structured cabling wired to a pair-managed distribution frame (such as PIDs, clocks, CHPs) shall have an adhesive label with a minimum of 12 point Sans Serif text of the form:

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[Serving Distributor ID XXNNN] [Vertical] [Pair range on vertical]

- a) Every socket shall be assigned a unique number (for instance a double outlet shall have two numbers)
For example (above one socket):

DF103 B11-14

13. Contract Deliverable Requirements List

13.1 Scope

13.1.1 The nomenclature and identification standards will impact on the following deliverables specified in overarching and individual ICT or OCS system specifications.

- a) Cable Records Sheet
- b) Distribution Frame Records
- c) Patch Records
- d) Drawings
- e) Master Record Index

13.1.2 This document assumes that until such time as the respective Rail Operator has established a Cable Records System database, data shall be manually entered and captured in spreadsheets in a format which allows future import into automated cable records (including VT VicTrack Cable Records) with minimal pre-import data manipulation.

13.2 Cable Records Sheet

13.2.1 Cable Records shall generally be in the form of spreadsheet presentation that will later become replicated as a site Cable Record List report from the database system.

- a) It shall contain all the data required to be captured in a database.
- b) The lists of cable types, characteristics and potential attributes shall be set up as table sheets on the same spreadsheet file. Data validation drop down lists shall be used to constrain selections to picking from lists. Sheets shall include:
 - i. Cable types
 - ii. Cable Properties
 - iii. Locations
 - iv. Racks and Containers assigned
 - v. Distributor and Patch Panel assignments
 - vi. Equipment assignments
- c) Each of these lists shall be configured in such a way that a cable records database (including VT VicTrack Cable Records) can import the data as lists or tables.

13.2.2 Where a cable terminates on an outlet dedicated to specific equipment, the cable shall be regarded as terminating on the actual equipment.

- a) Where there are multiple cables to the same equipment, the respective ports shall be indicated (in a separate column).

13.2.3 A Partially populated example sheet is appended (Cable Record Example DOT 111114.xls).

13.3 Distribution Frame Records

13.3.1 Distribution frame records shall generally show all detail specified in AS3085.1, but with an extra jumper column to allow for double jumpers, and configuration of data on the incoming side to allow for direct import into a database.

- a) Both the cable origin (connections at the remote end) in addition to the connections on the DF itself shall be recorded.

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- b) All data shall be recorded on the basis of one row per pair with data for the same cable (#NNNNN) being repeated on every row that cable terminates (as opposed to the traditional manual record presentation of showing one cable spanning a range).
- c) Provision shall be available for entering commoning (or splitting) diode details.
- d) Double jumpers shall be accommodated.
- e) Cable origin details shall include the Section number (#NNNNN).
- f) Jumpers shall have a separate column for the vertical frame and the pair within that frame (for future data export compatibility with database Cable Records).

13.3.2 Equipment items, distributors and outlets in the records shall be recorded by their assigned identifier (as recorded in the Cable Record Sheet).

13.3.3 The same “service description” shall be used to describe a signal at every appearance of that signal (both ends of all jumpers).

- a) In order to avoid multiple data entry discrepancies arising from typing differences, data shall only be entered once on the entire record, then copied (by “Paste Values” text copy to all other appearances).
- b) Where the same signal appears on multiple distributors, data shall be copied from spreadsheet to spreadsheet.
- c) A signal having transitioned an isolation device (such as an LIU or diode) shall be given a suffix to indicate it has been modified. The suffix may be destination related.

13.3.4 A sample jumper record sheet complying with the above criteria is attached.

13.4 Patch Records

13.4.1 Patch records shall generally show all detail specified in AS3085.1

- a) In particular, every fibre and every copper patch within a container (or even between containers) shall be recorded, regardless of whether it runs between ports, between equipment items or in and out of the same patch panel.
- b) All data shall be recorded on the basis of one row per signal line with data for the same cable being repeated on every row (as opposed to the traditional manual record presentation of showing one cable spanning a range).
- c) Every equipped port shall be listed, with patch details left blank if there is no patch.

13.4.2 The frame (or equipment) identifier and port shall be separate columns in the patch details.

13.4.3 Identifiers used for distributors and equipment in Patch Records shall be identical to those assigned in the Cable Record Sheet.

13.4.4 A sample patch record sheet is attached.

- a) Note the patch record includes port allocations. Separate port allocation tables shall not be produced.
- b) The format replaces multiple sheets produced on past projects with one sheet per container (i.e. all patches within a rack or enclosure are on one sheet).
- c) It is not an IP address schedule and the format is not suited to IP address data.

13.5 Schematic Drawings

13.5.1 Schematic drawings shall show the following:

- a) Level 1 region code and full identification for site MDFs (Optical and Copper) only. [For all other items, the Level 1 code shall be omitted].
- b) The boundary of containers (in dashed line work) together with their assigned identifier (and/or alias if applicable) as text inside and adjacent to the boundary line (only last level XXNN).
- c) On cabling / termination schematics:
 - i. assigned identifiers for all frames and patch panels XXNNN (below the frame/panel vertical line)
 - ii. Capacity [and connector attribute if applicable] (above frame/panel vertical line).
- d) On system schematics (showing end to end signals passing through frames), the assigned identifiers for all frame above the centre line(s) representing the frame terminations.
- e) On both cabling and system schematics, equipment identifiers XXXnNNN shall be shown against all equipment items.
- f) On cabling / termination schematics, cable section identifiers (the unique five digit number #NNNNN assigned within that Level 1 region) shall be shown in
- g) 1.8 mm Arial text above or beside the line (within 1 mm of the line itself) for all fixed cables between distribution frames, panels and equipment.
 - i. Cable properties (capacity and performance if applicable) shall be shown in-line within the line work as per AS3085.1.
 - ii. Any attribute data shown in cable records will not be shown on the drawing.
 - iii. Note: Cable numbers will not normally be shown on system / interface schematics (because the line-work in these is associated with the signals inside cables and through connections).

13.5.2 Patch cords are regarded as a connection (or joint/jumper) and numbering or labelling shall not be shown.

13.5.3 Wiring within defined standard assemblies treated as a system component within a container such as CCTV Field LAN Switches shall be numbered according to the standard assembly wire numbers, which shall be based on a fully populated assembly and be the same number for the same wire in every instance the box is used. Unused numbers shall be skipped in partially populated boxes.

13.5.4 Jumper or patch detail shall only be shown on “system” and interface schematics showing end-to-end connections between specific interfaces or terminals, not on “cabling” schematics showing block terminations and distributor terminal assignments.

13.5.5 The following are not required on manually (CAD) drafted schematic drawings but may be provided if automatically generated by VicTrack Cable Records or a Cable Records database:

- a) For identified equipment, XXX type identifiers may be omitted if they are self- evident from the symbols used.

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- i. The relationship between the full identifier and the short-hand form used on the drawing shall be indicated in a legend on the same sheet or included in the drawing set.
 - ii. For example, on CCTV site distribution schematics, the CCTV camera symbol is defined and the identifier will simply be the number (with first leading zero suppressed if not used on the site).
- b) Where the drawing content is restricted to a single region (Level 1 location), the region identifier “VVV” need not be shown on any equipment and frames other than the wide area site interface items inside the CER of respective buildings.

13.5.6 The use of equipment identifiers shall not replace the use of symbols representing the equipment.

- a) AS1102.1xx and AS3085.1 symbols and DOT agreed custom symbols based on AS1102.102 for other items shall continue to be used.
- b) An identifier inside a rectangle (“box”) shall not be used as an alternative symbol other than complex high level items [such as a PID or SMP].

13.6 Layout Drawings

13.6.1 Level 1 location (region) “VVV” identifiers need not be shown on any items except for the CER and for any items leading off site. The Level 1 location shall be identified in the title block and drawing number.

13.6.2 The layout drawing telecommunications / security (L-series) set shall include at least one “index” layout drawing specifically for the purposes of nomenclature definition showing:

- a) The boundaries of Level 2 areas within the part of the region covered by the drawings.
- b) The boundaries of Level 3 sub-areas (if not shown on other more detailed drawings).

13.6.3 On any layout drawings, full identifiers (or alias unique to the site in the case of containers and racks) shall be included for all of the following items, where they appear on the respective drawings:

- a) Closets and spaces used in cable records (notably CER, offices, platforms, concourse areas, car park areas)
- b) Containers (Enclosures and racks)
- c) Frames and patch panels
- d) Pits
- e) Poles
- f) Pathways to the extent that identifiers have been assigned (normally all backbone routes)

13.6.4 For identified equipment, XXX type identifiers may be omitted if they are self-evident from the symbols used and the legend and the presentation would become unclear if the full identifier was shown.

- a) The relationship between the full identifier and the short-hand form used on the drawing shall be indicated in a legend on the same sheet or included in the drawing set.

- b) For example, on CCTV coverage plans and schematics, if the CCTV camera symbol is defined, the identifier will simply be the number (with first leading zero suppressed if not used on the site).

13.7 Master Record Index

13.7.1 The Master Record Index shall capture all equipment, listed by its assigned identifier. The MRI shall include:

- a) All items listed in clauses 11.2.3 apart from f (the IP address).
- b) Serial number
- c) Supplied spares listed as line items, but without an assigned identifier.

13.7.2 The MRI will cease to have relevance once the records created have been imported into the Asset Register database.

13.8 IP Address List

13.8.1 The IP Address list shall include the IP address of all LAN connected equipment and any reservations made for future growth, listed by equipment identifier.

14. Referenced Documents

The following documents have been used as references in preparation and usage of this Standard:

Australian Standards

1. **AS1102.1** – Graphical Symbols for Electro-technology (full set parts 101 to 113)
2. **AS/NZS 3085.1** – Telecommunications Installations – Administration of Communications Cabling Systems – Basic Requirements
3. **AS/NZS 14763-2** – Information Technology – Implementation and Operation of Customer Premises Cabling, Part 2: Planning and Installation [when issued; expected 2012]
4. **AS/ACIF (CA) S009** – Installation Requirements for Customer Cabling (Wiring Rules)

VRIOG Standards

5. **PTV Infrastructure Drawing Standards** – Infrastructure Drawing Standards

VicTrack Standards

6. **TB-RD_L0100** – Connect Master Location Structure
7. **TS-SP_026** – Internal Plant Nomenclature Standard
8. **TS-SP_028** – External Plant Nomenclature Standard

Documents specified above shall refer to the latest version of the documents listed, or to any documents replacing these.

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15. System and Equipment Nomenclature Codes

15.1 System Codes

15.1.1 System codes are defined in Table 13

Application	Identifier
General ICT backbone, supporting corporate voice and data (e.g. ICT rack tie)	ICTB
OCS backbone (all ties to racks containing CCTV, PI Systems, PA etc. [was "CCTV"])	OCSB
Security (overarching items common to CCTV, alarms and access control, perimeter detection, such as a site fibre loop in a stabling yard)	SCTY
Security (backbone between panels, RAS including Challenger and reader LAN, also all detector, lock, siren and device cabling)	SECU
CCTV Security Camera (any items exclusively part of CCTV system)	CCTV
Perimeter detection system	PDET
SPOT Camera or monitor (legacy, new monitors and cameras are part of CCTV)	SPOT
PRIDE Interface	PRID
PIDS hardwired	PIDH
PIDS Wireless (Radio)	PIDR
Clocks	CLCK
CHP	CHP
PA / Hearing Loop (AFILS), including wireless microphone receivers, microphone cabling	PAHL
Intercoms	ICOM
Lifts (phone/intercom, alarm cables) – excluding CCTV cables	LIFT
Administrative telephone (and fax, EFTPOS etc.) – “voice lines”	TELV
Control Telephones (SEPAC)	TELC
Post Telephones	TELP
Tunnel Telephones	TELT
Analogue Radio	RADO

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Application	Identifier
Digital Radio	RADD
FM Radio rebroadcast	FMRB
MATV	MATV
Train Number Transmitter	TNT
Position of Trains System	POTS
FMP	FMP
ACOM (Zetron Acom communications console system)	ACOM
Data Networks (Operator Admin networks)	DATA
Ticketing	TCKT
Tunnel Intruder Alarm System	TIAS
Redflex	REDF
Voice logger	VLOG

Table 13 Nomenclature Codes – Systems

15.2 Standard Equipment Identifiers

15.2.1 Equipment Identifiers, grouped by category are assigned as shown in Table 14

Equipment Type	Identifier
TRANSMISSION / DATA COMMUNICATIONS / IP NETWORKS	
Core (Site) LAN Switch	CLS
Edge (Layer 2) LAN switch (usually non OCS)	ESW
Firewall	FRW
Field LAN Switch (OCS)	FLS
Media Converter (LAN optical to electrical, any protocol)	MCR
Modem (any type, baseband or voice frequency line, dial or leased line)	MDM
Multiplexer (any type, analogue or digital)	MUX
Router	RTR
Wireless Access Point	WAP
Wireless LAN Controller	WLC

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Equipment Type	Identifier
COMPUTER EQUIPMENT	
Content Management System ("CMSS")	CMS
Fibre Channel Attached Storage (to FC interface on server)	FCS
Keyboard Video monitor Mouse slide out tray unit	KVM
KVM Switch	KVS
Network Application Server	SVN
Network Attached Storage (IP connection)	NAS
PRIDE Console Processor	PCP
Printer	PTR
Protocol Converter System "PCSS"	PCS
Server, CCTV archival	SVA
Server, general (includes CCTV directory servers)	SVR
User Terminal	TRM
Virtual Machine Environment	VME
Workstation (any system)	WST
PASSENGER INFORMATION SYSTEMS	
AFILS Hearing Loop (the actual induction loop)	HLP
AFILS Hearing Loop Amplifier	HLA
Cathode Ray Tube Monitor (not normally part of a workstation)	CRT
Clock	CLK
Customer Help Point	CHP
LCD monitor (not normally part of a WST or PID, for example SPOT screen, standalone CCTV monitor)	LCD
Lift (general control interface, excludes Lift Phone Control Unit)	LFT
Line driver unit (any type audio over optical, video over UTP, etc.)	LDU
Loudspeaker (any type)	SPK
Microphone	MIC

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Equipment Type	Identifier
Optical isolation unit	OIU
PA Extended Zone Relay Box	EZR
PA Zone Selector Switch	ZSS
PID (any number of lines, any type including LCD, LED, wireless or wired)	PID
Preamplifier (if a separate unit distinct from an amplifier)	PRE
Public Address Amplifier (100V line output)	PAA
Public Address Tele page system	PAT
Video Extender (VGA, DVI)	VEX
RADIO (INCLUDES RECEIVERS AND TRANSMITTERS FOR OTHER OCS SYSTEMS)	
Antenna	ANT
Demodulator (not part of a single modem device)	DEM
Master Control System (analogue train radio)	MCS
Modulator (if separate from a modem, e.g. baseband video to RF TV)	MOD
Power Amplifier (RF, audio, MATV, anything other than PA and AFILS)	AMP
Receiver Unit (any system)	RXU
Remote Control Unit	RCU
RF Coupler	RFC
RF Exciter	XCT
RF Filter	RFF
RFID Reader (excluding security proximity card readers)	RFI
Train Control System Terminal	TCS
Transmitter Unit (any system)	TXU
CCTV AND SECURITY	
Break Glass Emergency Exit Release	BGR
Camera (any type, analogue, digital, PTZ)	CAM
Camera Drive Unit (for legacy Panasonic system analogue cameras)	CDU
Card reader with numeric code pad	NCR

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Equipment Type	Identifier
Decoder (any port count)	DEC
Digital Video Recorder (dedicated PAL CVBS input device, not a server)	DVR
Duress Button	DUR
Electric (Mortice) Lock	ELL
Electric Strike	ELS
Electro Magnetic lock	EML
Encoder (any port count)	ENC
Environmental Smoke Detector (not part of a Fire Alarm System)	SMK
Fence Detection Analyser / Processor Unit	FDU
Fence Detection Sensor (vibration, microphonic, trip wire)	FDS
Gate Control Unit (Boom gates, track gates, sliding or leaf vehicle gates)	GCU
Glass Break (Shatter) Detector / Alarm	GBK
Infra-Red Beam detection unit / set	IRB
Intercom control unit (main processor, switch, analogue or VoIP)	ICU
Intercom station (slave or master, analogue or VoIP)	ICM
Motorised / automatic door (or gate) control unit	DCU
Movement Detector (Passive Infrared)	PIR
Numeric code pad for door access (excludes arming stations)	NCP
Optical Fibre Analogue Video (PAL CVBS) Receiver	OVR
Optical Fibre Analogue Video (PAL CVBS) Transmitter	OVT
Proximity (including "Smart Card") or Swipe Card Reader (any type of interface)	CRD
Reed Switch (any type)	RSW
Request to exit switch	RTE
Security 4-door controller	4DC
Security Data Gathering Panel	DGP

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Equipment Type	Identifier
Security Master Panel	SMP
Security Remote Arming Station	RAS
SNMP Alarm Transmitter Unit	ATU
SPOT monitor enclosure (box with roller shutter/controller, no monitors)	SPM
Tamper Switch (micro switch, mechanically activated, not a reed device)	TSW
POWER AND ANCILLARY	
Air Conditioner	A/C
Back Up Battery Assembly	BUB
Circuit Breaker	C/B
Environmental Monitoring System (standalone device or probe)	EMS
General Purpose (Mains Power) Outlet (for telecommunications)	GPO
Integrated Rectifier Unit (main centralised DC supply with load distribution)	REC
Lightning Surge Diverter, Arrester	LSD
Potential Equalisation Clamp	PEC
Power distribution panel (rack mount load distribution unit, excludes DIN rail fuse and breaker panels)	PDP
Power Supply Unit (any type, AC input serving single equipment item or system, or DC-DC converter)	PSU
Relay	RLY
Residual Current Device (breaker)	RCD
Uninterrupted Power Supply	UPS
TELEPHONE SYSTEMS AND DEVICES	
Audio Bridge	AUB
Fax machine (any mode)	FAX
Lift telephone controller / interface	LTI
Line isolation unit (or recording adapter), transformer based, non-optical	LIU
Telephone handset, any type except Payphone (analogue, digital, "DTERM")	TEL
Telephone switchboard console terminal	TSB

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Equipment Type	Identifier
Telephone system switch (any type key phone, PABX)	PBX
Telstra or other carrier Public Payphone	PUP
Tone Generator Unit (Pip tones)	TGU
Voice Logger	VLG
OTHER	
Spare (for future equipment)	SPR

Table 14 Nomenclature Codes – Equipment

16. Attachments

16.1 Example Cable Record List

Cable Record List Example (Draft) DOT 11114.xls

16.2 Example Wiring Drawing Showing Typical Elements

Example ICT Cabling Schematic Showing Nomenclature 11083.pdf

Note, this matches the cable schedule in clause 16.1.

16.3 Example Patch Record Sheet

ICT Patch Record Template v1.1 110607.xls

16.4 IDF Record Sheet

IDF Record Template V1 101208.xls

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