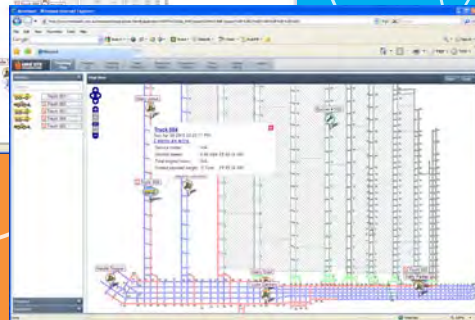
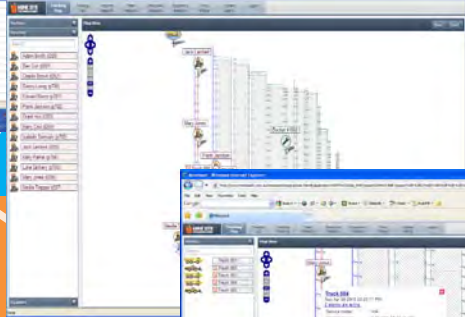
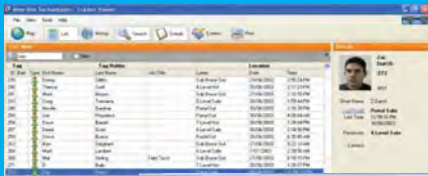


# IMPACT

The FUTURE of mining communications

Personnel and Asset Tracking



Productivity & Safety through  
Mine-Spec digital applications

Asset management  
Personnel safety  
Traffic management  
Scalable system  
Real time data



# IMPACT

## Personnel & Asset Tracking

The ImPact technology suite is designed to lead mining communications and digital infrastructure into the future. The ImPact tracking system has been specifically created for the mining industry to operate within the harsh environments encountered in all types of mining from underground to surface.

The ImPact tracking system is a cost-effective method of asset and personnel tracking, ensuring that the whereabouts of underground staff is always known, and that assets can be quickly located, particularly at shift changes.

Active RFID tags are carried by personnel or attached to assets such as vehicles and other implements. These tags are detected by strategically placed digital tag readers, typically installed at section entries, load points ore passes, draw points, and refuge bays. Location and movement data can be monitored and tracked, in real time, throughout the mine and presented in list format or as overlays on mine plans and maps.

The application software (called MineDash) provides users with a customisable viewer and powerful sorting, filtering, and searching tools, with comprehensive logging and extensive report generating facilities.

The system can be expanded to drive signs, lights and sirens for access control, traffic management systems, electronic tag boards and diesel token management. The software can also be integrated with automated mustering, ventilation and process control systems.

### Features and Benefits

#### Applications

Asset Location  
 Movement Tracking  
 Bottleneck Identification  
 Traffic Management  
 Access Control  
 Electronic Tag Board Control  
 Intelligent Ventilation Control

Identify and locate assets throughout the mine	Improve management of mine assets. Accurate reporting of location and cycle times.
Viewable from any authenticated PC	Simple set up with simple support and operation. No client software or activeX required.
Tracking engine	Proven and robust solution from the industry leader in tracking. Superior reliability. Mine specific customisations.
2.4GHz Wi-Fi tags	Superior range ensures reliable tag read.
Tags available integrated in Cap Lamps	Tag is always with mining personnel and charged with lamp. No tag loss. Ensures PED text messages or other communications can be quickly directed to the person closest to the location of interest.
Enables location aware diesel token management applications	Improved safety through accurate zone access control for personnel and vehicles.
Block light activation	Improved safety and efficiency through optimised vehicle movements.



## Typical personnel & asset tracking system

The ImPact personnel and asset tracking solution enables accurate tracking, increased personnel safety and, should the situation arise, a vital aid to emergency management. The system uses active RFID tags attached to vehicles, assets and carried by personnel together with wireless access points to indicate movement and location within the mine.

The tags can be stand-alone or, for greater reliability and longevity, integrated in the Mine Site Technologies (MST) Integrated Communications Cap Lamp (ICCL). The tag's unique identification data is registered each time it passes a Wireless Access Point. This data is logged to the database and then displayed in the desired format, allowing the location to be known and tracked, at all times, throughout the mine. When using the optional web based viewer, location and movement data can be combined with user-defined rules to trigger a desired

action. The active tags use a 2.4GHz signal which propagates extremely well in an underground environment increasing the accuracy and reliability of tag reads.

The wireless points can be configured to work with a single radio for presence detection or with two radios and directional antennas to determine the direction of travel. The latter method allows accurate 'zone boundaries' to be established. As a safety measure, in the unlikely event that surface communications are lost, the wireless points have the ability to display tag read data on underground signs and store it in a cache to be replayed when the network link is restored.

The tracking solution can be integrated into other systems to provide diesel token monitoring, access and ventilation control, traffic management and automated mustering systems.

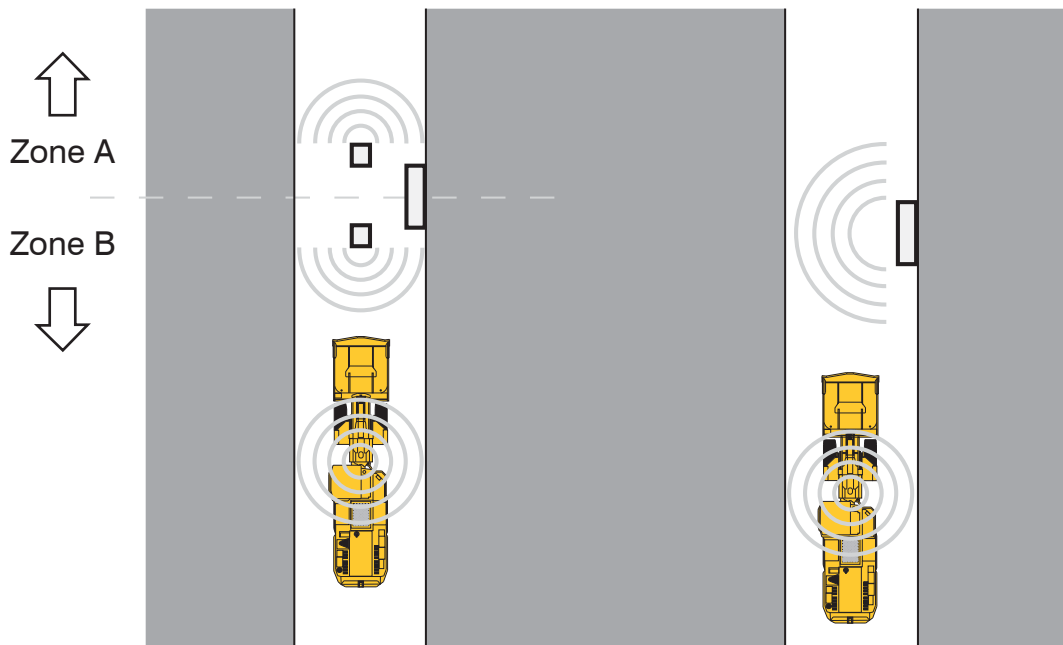


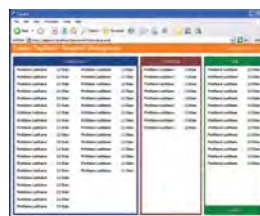
Fig1. Zone boundaries. The left-hand example shows a truck moving from Zone B to Zone A. The truck will be detected by the directional antenna at the edge of Zone B, followed by the antenna at the edge of Zone A, giving a direction to movement. The right-hand image shows presence detection, whereby the truck is detected as having passed the antenna.

### MineDash Tracking viewer



- Web based viewer - Use any viewer on any platform
- Customisable Groups
- Scalable - view any area from M's to KM's
- Powerful location tracking
- Easily add or remove assets
- Tracking of Tagged Equipment, Vehicles and MinePhones

### Tag board viewer



- Customisable display
- Easy and rapid identification of personnel and vehicles

### Zone display unit



- Diesel token management tracks maximum permissible number of vehicles
- Location data can drive block lights or traffic control

### Active RFID tags



- Self contained tags with IS certification
- Available as an integrated option with MST's Cap Lamp
- Replaceable battery
- Transmits: unique ID, battery level and checksum data
- 60m - 120m range

# IMPACT

The FUTURE of mining communications

## Network Infrastructure

- Takes your LAN underground cost effectively
- Forms the foundation of the ImPact portfolio
- Enables remote monitoring and control of equipment
- Allows easy and modular design of underground networks
  - Facilitates wireless data communications and VoIP
  - Reads Wi-Fi tags to support location aware application
- Rugged IP66 housing designed for the mine environment



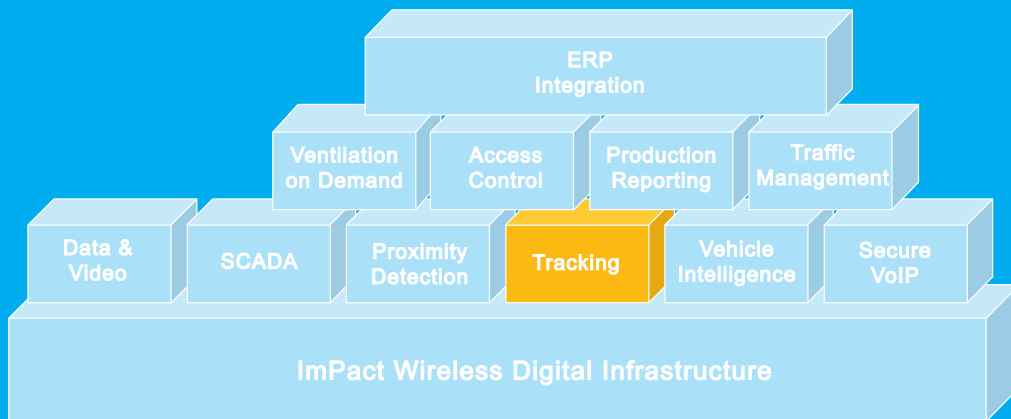
## Vehicle Intelligence Platform

- View vehicle diagnostics in real-time
  - Payload data in real-time
  - Acquire vehicle location data
- Report productivity information with greater accuracy
- Integrate with leading manufacturers' equipment (Such as Caterpillar etc)
  - Compliments your existing Mine Site Technologies Ethernet system



## Proximity Detection

- Reduce risks in personnel / vehicle interactions
- Minimise communications to control room
- Notify operators instantly in-cab



Mine Site Technologies PTY Limited.  
[www.minesite.com.au](http://www.minesite.com.au)

**SYDNEY**  
 25 - 27 Whiting Street  
 Artarmon  
 NSW 2064 Australia  
 PO Box 156 Artarmon 1570  
 Tel: +61 2 9437 4399  
 Fax: +61 2 9437 5688  
[mst@minesite.com.au](mailto:mst@minesite.com.au)

**PERTH**  
 5/30 Adams Drive  
 Welshpool  
 WA 6106 Australia  
 Tel: +61 8 9472 1710  
 Fax: +61 8 9022 2311  
[mstwa@minesite.com.au](mailto:mstwa@minesite.com.au)

**KALGOORLIE**  
 17 Darcy Lane  
 West Kalgoorlie  
 WA 6430 Australia  
 PO Box 4200, Kalgoorlie 6430  
 Tel: +61 8 9022 2300  
 Fax: +61 8 9022 2311  
[mstwa@minesite.com.au](mailto:mstwa@minesite.com.au)

**MOUNT ISA**  
 15 Duke Street  
 Mt Isa  
 QLD 4825 Australia  
 PO Box 2436 Mt Isa 4825  
 Tel: +61 7 4749 4922  
 Fax: +61 7 4749 4933  
[mstisa@minesite.com.au](mailto:mstisa@minesite.com.au)

**MACKAY**  
 Unit 2  
 Terminus Business Park  
 20 Caterpillar Drive  
 Paget QLD 4740  
 Tel: +61 0447 230180  
[mst@minesite.com.au](mailto:mst@minesite.com.au)

MST offices also located in ury and Calgary, Canada, Denver, Pittsburg and Washington USA

Mine Site Technologies Pty Limited reserves the right to make changes to the specifications and information contained in this brochure at any time and without notice. MST-TRK0611-AU

