



News from
12d Solutions



The Dirt Digger



Welcome

...to the **June 2017** issue of the **Dirt Digger**. It's been another action-packed six months for us!

This edition will feature:

- **Update: 12d Model 12 and 12d Synergy 3**
- **12d International Conference 2018**
- **New 12d Training courses**
- **Credit card facilities**
- **Case Study: Woolgoolga to Ballina Upgrade**
- **12d Webinars**

We look forward to hearing any feedback or news you might have.

Regards,

Dr Lee Gregory

Managing Director

lee.gregory@12d.com

Mr Alan Gray

Technical Director

alan.gray@12d.com

Product updates

All users on maintenance are now eligible to download the Release version of **12d Model 12** from the [12d Model Forum](#).

12d Synergy Continues to Expand!

Streamlined regional and global worksharing is a key benefit of 12d Synergy. Many customers have rolled out File Replication Servers (FRS), enabling multiple sites to operate from a single working environment with very little data transfer required. 12d Synergy's single source of truth enables backups to be managed centrally, with rock solid version control for all users. On 28th June, 12d Synergy's Technical Lead Richard Stolar will be giving an overview of the FRS in a webinar; register [here](#).

Many customers and major projects have adopted 12d Synergy on both sides of the Tasman. The North Canterbury Transport Infrastructure Recovery Alliance (NCTIR) selected 12d Synergy to help them rebuild the areas devastated by the Kaikoura earthquake in 2016. The Mount Messenger Alliance on the North Island has also chosen 12d Synergy. In Australia, the Canberra Metro and Sydney B-Line projects are roaring ahead. We would also like to welcome BMD, GMCCS, Jacobs, O2 UDP, and Wood & Partners, to name just a few new faces (see 'Welcome Aboard' for more!).

Our developers have been putting the final touches onto Version 4, with an alpha version expected in coming months...stay tuned!



12d International Conference 2018

Watch this space for details as we're already in the planning stages for this next big event (and the associated Innovation Awards)!

Dates: **Sunday 29th, Monday 30th and Tuesday 31st July 2018**

Venue: Brisbane Convention and Exhibition Centre (BCEC) – Boulevard Level, Grey St.

12d's new training courses!

We gave our training courses a complete overhaul, so they not only provide the most efficient way to package the multitude of information we can offer about 12d products, but are also consistent across all regions!

Public courses in this new format have been running - and receiving positive feedback - across most capital cities in Australia and New Zealand since January.

In-house training for clients reduces travel costs and downtime. Our new courses are modular, so in-house courses can be customised to suit your needs. [Contact us](#) about in-house training at your office today, or see the [web page](#) for more information!

Credit card facilities

Most of our customers are using Direct Deposit for invoice payments, but we also accept credit card payments, especially for smaller amounts such as 12d Conference registrations and Training Courses.

This is just a reminder that we can accept credit card payments for Visa, Mastercard and Amex for a nominal surcharge.

We will be adding the facility to www.12d.com but before then, please contact us if you'd like to use your credit card.

Finding the right solution on the W2B upgrade

The Woolgoolga to Ballina Upgrade (W2B) is an immense undertaking that involves a 155-kilometre upgrade of New South Wales' Pacific Highway to dual carriageway, along with major grade separated interchanges and upgrades of existing roads.

Due to the sheer scope of the project, the client – Pacific Complete – separated the extensive design and construction works into a number of portions.

An Arup-Cardno Joint Venture (ACJV) won the detailed design contract for Woolgoolga to Ballina Portion C, which comprises sections 7, 8 and 9 of the wider project.

This works package involves a 35-kilometre realignment and upgrade of the existing Pacific Highway to dual-lane carriageway between Devils Pulpit and Richmond River. Grade-separated interchanges to provide access to the Woodburn and Broadwater townships from the highway also comprised the project.

Niall Brady, Senior Engineer – Transport & Resources at Arup, worked on the project and explains that its design challenges required a unique solution from the get-go.

The brief called for the project team to implement digital engineering processes during detailed design as part of Roads and Maritime Services initiative to use building information modelling (BIM) technologies. This was to provide the capability to create and manage the delivery of the project effectively and streamline future maintenance of the asset.

“BIM hasn't been completed in an infrastructure project in NSW or Australia to this level of detail before,” he says.

The naming – or tagging – elements within the design had to align with the Pacific Complete BIM naming protocols. The tagging of highway design elements included accurate 3D models of all pavement layers, earthworks, kerbs, line marking and safety barriers, with the model divided into 100-metre intervals for tagging individual items.

Likewise, the drainage elements required a 3D model for all pipes, headwall, culverts, basins and drainage channels, all of which required their own tag.

“The brief was quite complex in that every element had to be named using these protocols – every

signpost, barrier – every aspect had to have its own individual tag,” says Mr Brady.

He explains that the benefits of such comprehensive tagging would allow the asset owner to individually identify elements that would require maintenance, such as safety barriers, during operation.

Pacific Complete's naming protocol contained more than 100 components that needed to be tagged and subdivided into location, direction, family and number.

The design team had to approach the project unlike any other highway project because of the complexities of the modelling, tagging design elements and dividing the alignment into 100-metre sections.

The ACJV would eventually have nearly 100 staff working on the project at its height, so the sheer scale of the undertaking was always a challenge.

“Before we started the project, we had to see how we could deliver on these very ominous requirements,” says Mr Brady.

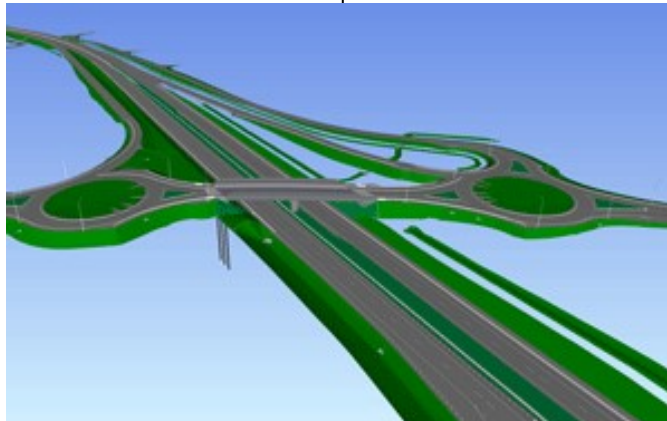
To address these significant hurdles, the ACJV team needed to find the right software to provide a comprehensive solution. Mr Brady was responsible for completing a review of the available software for implementing the digital engineering aspects on the project. The aim was to identify the most efficient process to complete the project's BIM requirements, while also catering for cross collaboration between different disciplines.

Given its latest developments with 3D mesh surfaces (trimeshes), use of snippets (coding tools) to standardise naming, and workflow tools – or chains – to help streamline processes, 12d Model was selected for the civil aspects of the project.

The design team was responsible for developing the customised snippets and chains to create the BIM models for the highway and drainage elements, as well as applying unique attributes to each element and the correct naming conventions.

To ensure the project met its design briefs, predominantly adhering to the BIM naming protocols set out in the brief, Mr Brady developed a 12d Project Plan.

“The alignment was divided into individual 12d projects with strict naming convention for models and strings to ensure clean collaboration between sections and disciplines and consistent naming for BIM tagging,” he explains.



Mr Brady says the software's user-friendly design meant it saved hours of time, cost and effort for the overall design team.

"We had up to 15 12d users working on the project who all came with different experience and it was easy for them to pick up the software and run with it," he says.

"The road alignment and drainage elements could be done in 12d and then shared in other discipline's models, which meant we could do clash detection very easily – it was all very dynamic."

He says the BIM models were exported from the 12d model consisting of 3D mesh surfaces saved with Industry Foundation Classes (IFC) files. This industry standard format allowed the BIM models to be imported into Autodesk Navisworks along with the structural bridge and culvert models, to check for said clashes between design elements and existing utilities.

Mr Brady says this approach allowed all design models, from different design software, to be collaborated and reviewed in one 3D space.

To undertake the process of labelling and scheduling all kerbs, barriers, line marking and water quality basins, the team developed chains using 12d Model to automatically tag these elements in the design plans. The schedules were then outputted to Excel with little manual input from the team. He says the ability to create macros within 12d allowed the team to then import the tags from the Excel schedule to AutoCAD to display the tags on all the drawings. Not only did this process ensure consistency but it helped to remove human error in AutoCAD labelling the elements.

Mr Brady surmises that the ability to control the naming and to set up standard snippets using 12d Model software meant it was a real asset to the project.

As a result of its successful employment of 12d Model software on the W2B Section C project, the ACJV was awarded with the 2016 Customisation Award at the 2016 12d International Innovation Awards. "It was very new what we were doing with BIM and in 12d, but it showed just how the software helped deliver the project and the benefits that it brought to the design team."

—as [featured](#) in *Roads and Civil Works Magazine*, April/May 2017

12d Webinars

2017 has seen the continuation of our two very successful webinar series - Industry Solutions and Training. Both have been very popular, as evidenced by live attendance and YouTube views (both totalling well into the thousands!).

Industry Solutions Webinars provide insights into overcoming challenges in an evolving industry in more effective and efficient ways. These are shorter and less technical than Training sessions, and are generally suitable for managers and non-users of 12d products.

12d Training Webinars are more in-depth, focussing on training users in a specific topic. They showcase common industry challenges, taking a close look at industry best practices and how these can be implemented using 12d products. The aim of these webinars is to upskill 12d users and broaden their understanding of the capabilities of 12d products.

Got an idea for a future webinar topic, or want to be involved/demonstrate a case study? [Contact us](#) today!

View the 12d Training Webinars playlist [here](#).

View the Industry Solutions Webinars playlist [here](#).



Sales, Support & Training

AUSTRALIA

NSW, ACT & SA

Extra Dimension Solutions

admin@exds.com.au

Ph. (02) 9452 6771 (Sales)

(02) 9453 9449 (Support)

WA

Critical Image/12d WA

wa.sales@12d.com

Ph. 0411 601 066 (Design Sales)

wa.support@12d.com

(08) 9467 2672 (Design Support)

graham.wirth@12d.com

(Survey Sales & Support)

wa.training@iscdt.com.au

VIC & TAS

12d Victoria

vic.sales@12d.com

vic.support@12d.com

vic.training@iscdt.com.au

Ph. (03) 9005 7626 (Sales & Support)

QLD & NT

12d Queensland

qld.sales@12d.com

qld.training@iscdt.com.au

Ph. (02) 9970 7117 (Sales)

(07) 3040 7880 (Support)

UK, EUROPE, MIDDLE EAST & AFRICA

12d UK

sales@12d.co.uk

support@12d.co.uk

Ph. +44 (0) 845 051 0372 (Sales & Support)

NEW ZEALAND

12d NZ

lane@12d.co.nz

Ph. +64 27 477 7787 (Sales)

+64 4 564 3288 (Support)

ASIA

12d

soon.teh@12d.com

AMERICAS

12d Canada

ben.crawford@12d.com

Ph. +1 206 905 1464

FIJI

Lukemine Enterprises

lukemine@connect.com.fj

Ph. +679 337 0858 (Sales)

OTHER REGIONS

12d Solutions

info@12d.com



Welcome Aboard to our New Licences and Upgrades from...

- 360 Surveying – NSW
 Acciona Infrastructure – NSW
 Acciona Ferrovial Joint Venture – NSW
 Acor Assets – NSW
 Acor Consultants – NSW
 Active Survey – NZ
 AD Design and Consulting – Vic
 Adamson Shaw – NZ
 Advanced Civil Solutions – Qld
 AECOM Australia – NSW, Qld, WA
 Aker Solutions Australia – Qld
 All About Pipes – NSW
 Alliance Surveying – WA
 Allroads – Qld
 Amey – UK
 Aquatec Maxcon – Qld
 Arcadis – NSW, Qld, WA; Middle East; Philippines
 Arup – NSW, Qld
 AT & L – NSW
 Atteris – WA
 Aurecon Australasia – Qld
 Auspat Australia – NSW
 Ayson & Partners – NZ
 Barlow Shelley – Qld
 Barr and Harris Surveyors – NZ
 BCH Engineering Consultants – WA
 Beca – NZ
 Benchmark Engineering Surveys – NSW
 Benchmark Survey and Design – Qld
 Bennett + Bennett – Qld
 Bereza Civil Surveys – ACT
 Beveridge Williams – Vic
 Beyond – NZ
 BG & E Consulting Engineers – WA
 Birch Surveyors – NZ
 Black EME – Qld
 Blacktown City Council – NSW
 Bland and Jacson Surveyors – NZ
 BMD Group – Qld
 BMW Engineering Surveys – NSW
 Bornhorst and Ward – Qld
 Bouygues Construction – NSW
 Brookfield Rail – WA
 Burchills Engineering Solutions – Qld
 Burton Contractors – NSW
 Byrne Surveyors – Qld
 C & R Developments – NZ
 Calculated Surveys – SA
 Calibre – NSW, Qld, WA; NZ
 Candor3 – NZ
 Cardno – NSW, Qld, Vic, WA; NZ
 Catherine Santos – Vic
 Cato Bolam Consultants – NZ
 Central Surveys – NZ
 Changda International – NZ
 Charlton Degg – Vic
 China Railway 1st Group Fiji – Fiji
 City of Gold Coast – Qld
 City of Greater Geraldton – WA
 Civil Services (HB) – NZ
 Civil Team Engineering – NSW
 CivilPlan Consultants – NZ
 CKL Surveys – NZ
 CLC Consulting Group – NZ
 CMS Surveyors – NSW
 Cogswell Surveys – NZ
 Complete Urban – NSW
 Compton Consulting Services – UK
 Construction and Development Surveys – Qld
 Construction Survey 2010 – NZ
 CPB Contractors – NSW, Qld; NZ
 Craig and Rhodes – NSW
 Cuttriss Consultants – NZ
 Dalton Consulting Engineers – Vic
 Daniel Di-Mattina – Qld
 Daniel Fritchley – WA
 Daracon Group – NSW
 Davie Lovell Smith – NZ
 Davis Ogilvie Professionals – NZ
 De Nada Engineering Surveys – WA
 De Witt Consulting – NSW
 Dempsey Wood – NZ
 Department of Primary Industries and Mines – Thailand
 Department of Primary Industries – Lands – NSW
 Department of Transport and Main Roads – Qld
 Diversi Consulting – NSW
 Dixon Surveying – NSW
 Downer EDi Works – NZ
 Downer Group – NSW
 e2 Environmental – NZ
 Element IMF – NZ
 Engineering Surveys – SA
 ESO Surveyors – NSW
 Ferrovial York JV – NSW
 Flat Out Surveying – Vic
 Flussig Spatial – Tas
 Focus Survey Group – Qld
 Foresight Surveys – Qld
 Fortesque Metals Group – WA
 Fulton Hogan Group – NSW
 GD Survey – NSW
 Geo-Metric Surveying – NSW, Qld
 Geosurv – NSW
 GeoSync – NZ
 Gilbert Haymes & Associates – NZ
 GM-CCS – Qld
 GR Engineering Services – WA
 Griffith City Council – NSW
 Ground Developments – UK
 GTS Drafting – Qld
 Halls Fripp Surveying – Qld
 Harrison Grierson – NZ
 Harrison Infrastructure Group – Qld
 Henry and Hymas – NSW
 Horizon Surveys – WA
 i³ Consulting – Qld
 Incitus – Vic
 Integral Surveys – NSW
 J. Wyndham Prince – NSW
 JAC Surveyors – Vic
 Jacobs Group – NSW, Qld, Vic, WA; NZ
 Jem Design (Australia) – NSW
 Jones Nicholson – NSW
 Juta Consulting – NZ
 K F Engineering – Vic
 Keller Civil Engineers – NSW
 Kellogg Brown and Root – Qld, WA
 Keltic Surveys – Qld
 Kerry Surveys – ACT
 Kevin McGill – UK
 King and Campbell – NSW
 KN Group – Qld
 Laing O'Rourke – WA
 Land Dimensions – NZ
 Land Surveys No Problems Just Solutions – NSW, Qld, Vic, WA
 Landforming to Perfection – Vic
 LandLink – NZ
 Landmark Surveys – NSW
 Lands and Survey – NZ
 LD Eng – Vic
 Lend Lease Bouygues JV NCX LLBJV – NSW
 Lend Lease Engineering – NSW, Qld, Vic
 Lim Surveyors – NZ
 Locaters – NSW
 LTS Lockley – NSW
 Lycopodium Minerals – WA
 Lynton Surveys – NSW
 Lysaght Consultants – NZ
 Mackay Regional Council – Qld
 McConnell Dowell – Qld; NZ
 McMullen Nolan & Partners – WA
 Macro Consulting Surveyors – NSW
 Manukau Institute of Technology – NZ
 Marcon Infrastructure Group – Vic
 Mark Surveys – NSW
 Martens & Associates – NSW
 Martin Lowry – WA
 Meinhardt – Singapore
 MG Solutions – NZ
 MH Surveys – ACT
 Millar Merrigan – Vic
 Milton Services – SA
 MinStaff Survey – Qld
 MJ Snow – NZ
 MLEI Consulting Engineers – SA
 Mortons Urban Solutions – Qld
 MPF Surveying – NSW
 MPS Civil Surveys – NSW
 Multi Surveying – Qld
 MWH – Qld
 NCTIR Alliance – NZ
 New Earth Homes – Vic
 Newcastle City Council – NSW
 Noosa Council – Qld
 Newlands Civil Construction – Qld
 Newpave – NSW
 Nexus Surveys – WA
 Nicholson Surveying – NZ
 Noosa Council – Qld
 North Western Surveys – NSW
 Northrop Engineers – NSW
 Nova Surveys – Qld
 O.M.A.E. Surveyors – NSW
 O2UDP – Qld
 Opus – NSW, Qld; NZ
 Orion Consulting Engineers – NSW
 Osborn Consulting Engineers – Qld
 Ostwald Bros – Qld
 Pacific Survey – NSW
 Paroissien Grant & Associates – Vic
 Paterson Pitts Partners – NZ
 Pavaset Australia – Qld
 PDC Operations – Qld
 peakURBAN – Qld
 Peter Hill Consulting Engineers – WA
 Plateau Consultants – NZ
 Platinum Surveys – WA
 Positive Survey Solutions – NSW
 Proform Civil – WA
 ProSurv – NSW, Qld
 PT Hasnur Riung Sinergi – Indonesia
 PT Kalimantan Citra Bara – Indonesia
 PT Kalimantan Prima Persada – Indonesia
 PT Pama Persada Nusantara – Indonesia
 PT Sims Jaya Kaltim – Indonesia
 Pulver Cooper and Blackley – NSW
 Queanbeyan-Palerang Regional Council – NSW
 Queensland Rail – Qld
 Queensland Surveying Solutions – Qld
 Rafiki Surveys – NSW
 RD Consulting – Vic
 Reyburn and Bryant – NZ
 RGH Consulting Group – NSW
 Riley Consultants – NZ
 Rio Tinto – WA
 RMA Consulting Engineers – Qld
 Roads and Maritime Services – NSW
 Robert Bird Group – NSW, Qld
 Robson Civil Projects – NSW
 RONI Surveying Solution – NZ
 RPC – NZ
 RPS – NSW, Qld
 RTN Drafting Services – Vic
 Salini Impreglio (NRW JV) – WA
 Scope Surveying – NSW
 SCIRT – NZ
 SCS Engineering Surveyors – NSW
 Sedgman Consulting – Qld
 SEMF – Vic
 Seymour Whyte – NSW
 Serling Consulting – WA
 Shadforth's Civil Contractors – Qld
 Shawmac – WA
 Shearer Contracting – NSW
 Shire of Broome – WA
 Shire of Northam – WA
 SKS Surveys – SA
 SMEC – NSW, Qld
 Southern Metropolitan Cemeteries Trust – Vic
 Spire – Vic
 SportEng – Vic
 Syvve Surveying Solutions – NSW
 St Quentin Consulting – Vic
 Staig and Smith – NZ
 Stakeout – NZ
 Stevenson Surveys – Qld
 Stewart Group – NZ
 Stewart Surveying – NZ
 Storm Surveying – Vic
 Stringer Surveys – Qld
 Subdivisions – Qld
 Sunshine Coast Council – Qld
 Sunstate Engineering Surveys – Qld
 Sure Search – NSW
 Surex – NSW
 Survey Dynamics – WA
 Survey Dynamics Group – Qld
 Survey Mark – Qld
 SurveyPlus – NZ
 TABEC – WA
 TAFE Queensland – Qld
 Taylor Thomson Whitting – NSW
 Terramark – NZ
 Teunesen zand en grint – Netherlands
 TGM Group – Vic
 Thurlow Consulting Engineers and Surveyors – NZ
 Tomkinson Group – Vic
 Tomlinson&Carruthers Surveyors – NZ
 Tonkin and Taylor Group – NZ
 Toowoomba Regional Council – Qld
 Total Construction Surveyors – NZ
 Triple Star Management – NZ
 TRS Enterprises – NSW
 True Civil Consulting – WA
 Trunnion – Qld
 TSS Total Surveying Solutions – NSW
 Turnbull Engineering – NSW
 UAV Surveys – NSW
 Urban Civil – Vic
 Urban Project Engineers – Qld
 Vassallo Constructions – Qld
 VFT Engineering Surveyors – NSW
 Virtue Construction Surveying – Vic
 Vision Surveys – Qld
 Wallbridge and Gilbert – SA
 Warkworth Surveyors – NZ
 Warren Smith & Partners – NSW
 Watsons – Vic
 Wave Engineering Solutions – Vic, WA
 Whelans Survey and Mapping Group – WA
 Wilsons Survey Group – Qld
 Wolter Consulting – Qld
 Wood & Partners – NZ
 WorleyParsons – Qld, WA; India
 WSP | Parsons Brinckerhoff – NSW, Qld, Vic
 WW Surveys – Qld
 Yeomans Survey Solutions – NZ

'Welcome Aboard' to our new 12d Synergy licences and upgrades from...

- AECOM Australia – Qld
 Bennett + Bennett – Qld
 BMD Group – Qld
 Bouygues Construction Australia – NSW
 Bruce Alexander Surveyors – NZ
 Cameron Gibson and Wells – NZ
 Cato Bolam Consultants – NZ
 Engineering Solutions – Qld
 Fulton Hogan – NSW
 GM Civil + Construction Surveying – Qld
 Graham Surveying – NZ
 Ground Developments – UK
 Harrison Grierson – NZ
 Harrison Infrastructure Group – Qld
 Land Development Engineering – Vic
 McKenzie & Co. – NZ
 Mount Messenger Alliance – NZ
 North Canterbury Transport Infrastructure Recovery (NCTIR) – NZ
 O2UDP – Qld
 Orogen – NZ
 SMEC Australia – Vic
 Southern Land – NZ
 Wood & Partners – NZ
 WSP | Parsons Brinckerhoff – Qld

